SUBSURFACE SOIL INVESTIGATION

Sunset Ridge Subdivision Severance, Colorado

PREPARED FOR:

Journey Homes, LLC 7251 W. 20th St., L-200 Greeley, CO 80634

JOB NO. 180135

March 30, 2021

Respectfully Submitted,

RMG - Rocky Mountain Group

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3/30/21

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PROJECT DESCRIPTION AND SCOPE

Project Location

The project lies in part of the northeast quarter of Section 3, Township 6 North, Range 67 West of the 6th Principal Meridian. The site is generally located to the west of the Town of Severance in Weld County, Colorado. The site is located south of County Road 74 and east of County Road 21. The approximate location of the site is shown in the Site Vicinity Map on Figure 1.

Project Description

The project is to consist of the development of a parcel of vacant, semi-developed property for residential use. It is our understanding that this development will be occupied by single family residences with no multifamily units planned at this time. RMG was retained to evaluate the subsurface conditions for the 105 lots within the proposed Sunset Ridge Subdivision.

Scope of Work

RMG was retained to assess the soil conditions and develop geotechnical engineering recommendations to support the residential land development for the proposed project. Our scope of services consisted of a field investigation, laboratory testing, engineering analysis, and report preparation.

This report presents geotechnical engineering recommendations for the design of foundations for the single family residences located on the lots listed above. The recommendations in this report are also contingent upon completion of an Open Excavation Observation by RMG, prior to construction of the foundations in order to verify subsurface conditions for the specific excavated site.

The following is excluded from the scope of this report including but not limited to geologic, natural and environmental hazards such as landslides, unstable slopes, seismicity, snow avalanches, water flooding, corrosive soils, erosion, radon, wild fire protection, hazardous waste and natural resources.

Existing Site Conditions

At the time of our field exploration overlot grading was being completed. Water and sewer connections were being installed during our investigation throughout the subdivision. Curb and gutter had not been installed and the roads had not been paved. Topography of the site generally sloped gently down from the northwest to the south and southeast portion of the site. Vegetation was not present at the site due to the overlot grading. The surrounding areas consist of residential properties on all sides of the subdivision.

FIELD INVESTIGATION AND LABORATORY TESTING

The information included in this report has been compiled from field reconnaissance, exploratory soil borings and soil laboratory testing. Monitoring programs, which typically include instrumentation and/or observations for surface water flows, slope stability, subsidence, and similar conditions, are not known to exist and were not considered applicable for the scope of this report.

Subsurface Investigation

The subsurface conditions on the site were investigated by drilling 105 exploratory test borings, approximately one bore on every lot in this investigation. The bores were placed near the center of each lot investigated. The approximate locations of the test borings are presented in the Boring Location Plan on Figure 2.

The test borings were advanced with a truck-mounted, continuous-flight auger drill rig to depths of about 20 feet below the existing ground surface (bgs). Soil samples were obtained from the test borings in general accordance with ASTM D-3550 utilizing a 2½-inch OD modified California sampler. The approximate depth of groundwater was investigated in each of the test borings at the time of drilling. The static groundwater levels were measured following the completion of drilling. The Test Boring Logs are presented in Figures 3 through 55. An Explanation of Test Boring Logs is presented in Figure 56.

Laboratory Testing

The moisture content for the recovered samples was obtained in the laboratory. Grain-size analysis, Atterberg Limits, and swell/consolidation tests were performed on selected samples for purposes of classification and to develop pertinent engineering properties. A Summary of Laboratory Test Results is presented in Figure 57. Soil Classification and Atterberg Test Results are presented in Figures 58 through 64. Swell/Consolidation Test Results are presented in Figures 65 through 81.

SUBSURFACE CONDITIONS

Soil and Bedrock Profile

The subsurface materials encountered in the test borings were classified using the Unified Soils Classification System (USCS). The subsurface materials encountered in the test borings generally consisted of an upper fill material comprised of stiff to very stiff sandy clay as well as native very loose to medium dense silty to clayey sand. Underlying the surface material, weathered to very hard siltstone bedrock was encountered. The siltstone contained thinly interbedded claystone lens in many of the test borings. The siltstone bedrock was encountered in 78 of the test borings at depths ranging from approximately seven feet to 18 feet below existing grade. The shallow siltstone was encountered near anticipated foundation depths on lots predominately located on Blocks 2 and 3.

Additional descriptions and the interpreted distribution (approximate depths) of the subsurface materials are presented on the Test Boring Logs. The classifications shown on the logs are based upon the engineer's classification of the samples at the depths indicated. Stratification lines shown on the logs represent the approximate boundaries between material types and the actual transitions may be gradual and vary with location.

Groundwater

Groundwater was encountered in 40 of the test bores at the time of drilling at depths ranging from 18 feet bgs to 20 feet bgs. When checked following the completion of drilling, static groundwater was observed in each of the 50 test bores at depths ranging from 15 to 20 feet bgs.

Fluctuations in groundwater and subsurface moisture conditions may occur due to variations in rainfall and other factors not readily apparent at this time. Development of the property and adjacent properties may also affect groundwater levels. The groundwater appears to be a perched condition which means it will be more greatly impacted by surface water.

CONCLUSIONS

The following discussion is based on the subsurface conditions encountered in the test borings and on the project characteristics previously described. If conditions are different from those described in this report or the project characteristics change, RMG should be retained to review our recommendations and adjust them, if necessary. The results of this investigation indicate that the site is suitable for the proposed project provided the recommendations presented herein are implemented.

As previously discussed the site is underlain primarily by an upper fill material comprised of stiff to very stiff sandy silty clay and sandy to clayey native soils. The native soils included loose to medium dense silty to clayey sand. Underlying the upper soils, weathered to hard siltstone bedrock was encountered. The siltstone occasionally contained thinly interbedded claystone lens. The native clay samples consolidated up to 8.8% and exhibited up to 5.4% swell. The silty to clayey sand samples exhibited up to 7.6% consolidations and exhibited 0.2% swell potential. Finally, the siltstone bedrock samples tested generally exhibited less than 1.3% consolidation and no swell potential. Swell/consolidation tests for this investigation were performed by wetting all samples against 1,000 psf surcharge pressures.

Geotechnical recommendations based on the field investigation and laboratory testing are presented below. It must be understood that these recommendations should be verified after the excavation on each individual lot is completed.

SITE DEVELOPMENT AND EARTHWORK

Site Preparation

Prior to construction the ground surface in proposed structure and improvement areas should be stripped of existing vegetation, debris, topsoil, undocumented fill, soft, loose, or disturbed native soils, and other deleterious material. Materials generated during clearing operations should be removed from the project site for disposal. Soft, loose, or yielding subgrade should be removed to a depth that exposes firm subgrade and replaced with structural fill. In areas to receive structural fill, the exposed subgrade should be scarified, moisture conditioned, and compacted per the recommendations set forth in this report.

Excavations

The on-site surface and near surface soils may generally be excavated with heavy-duty earthmoving or excavation equipment in good operating condition. In the areas where auger refusal was encountered due to the sandstone bedrock, heavier equipment may be required to break through the sandstone. During wet weather, earthen berms, swales, or other methods should be used where necessary to route water away from excavations. Water that accumulates in excavations should be promptly pumped out or otherwise removed and the area allowed to dry before resuming construction.

Geotechnical Considerations

Soft/Loose and Dry Collapsible Soils:

Soft/loose and dry collapsible soils were encountered at anticipated foundation depths on all blocks throughout the subdivision and are not suitable for direct bearing of shallow foundations. Where soft/loose or dry soils are encountered in the excavation, they will require additional compaction to achieve the allowable bearing pressures indicated in this report. We recommend reconditioning the on-site soils beneath the foundation components prior to constructing the foundation by overexcavating, moisture conditioning and recompacting the soils that results in a minimum of two feet of properly reconditioned soils beneath the footings and slabs. Please reference the Structural Fill section below for compaction recommendations. The zone of overexcavation and replacement should extend beyond the building perimeter a minimum of 4 feet, including beyond the perimeter of counterforts and "T" wall footings. The use of track-mounted excavation equipment or other low-ground-pressure equipment is recommended to reduce the likelihood of loss of stability during excavation.

Isolated pockets of loose soils may be encountered in the excavations, even on lots where none are indicated on the test borings. If soft/loose soils are encountered, they may also require additional compaction and/or stabilization as previously mentioned to achieve the allowable bearing pressure indicated in this report.

Expansive Clay:

The upper dry clay soil on Lot 6, Block 5 and surrounding lots, is considered to possess moderate to high swell potential and is not suitable for direct support of shallow foundations or slabs. If the dry, expansive clay is determined to be 3 feet of the bottom of foundation components and floor slabs, it will require removal (overexcavation) and replacement with non-expansive, granular structural fill to a depth which results in at least 3 feet of compacted granular structural fill below foundation components and floor slabs. The structural fill should be observed and tested during placement as indicated under the Structural Fill section of this report, to ensure proper compaction. An alternative stabilization method would be removal and replacement (overexcavation) with 4 feet of moisture-conditioned of on-site soils in accordance with the Moisture-Conditioned Structural Fill section of this report. The zone of overexcavation and replacement should extend beyond the building perimeter a minimum of 4 feet for granular, non-expansive structural fill and 4 feet for moisture-conditioned onsite soils, including beyond the perimeter of counterforts and "T" wall footings.

Foundation Wall Backfill

Backfill should be placed in loose lifts not exceeding 8 to 12 inches with material no greater than 4 inches in diameter, moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content), and compacted to 90 percent of the maximum dry density as determined by the Standard Proctor test, ASTM D-698 on exterior sides of walls in landscaped areas. In areas where backfill supports pavement and concrete flatwork, the materials should be moisture conditioned to +/- 2 percent optimum moisture content compacted to 95 percent of the maximum dry density as determined by the Standard Proctor test, ASTM D-698.

Fill placed on slopes should be benched into the slope. Maximum bench heights should not exceed 4 feet, and bench widths should be wide enough to accommodate compaction equipment.

Expansive bedrock should not be used as backfill materials. The backfill should not be placed on frozen subgrade or allowed to freeze during moisture conditioning and placement. Backfill should be compacted by mechanical means, and foundation walls should be braced during backfilling and compaction.

Structural Fill

Areas to receive structural fill should have topsoil, organic material, or debris removed. The upper 6 inches of the exposed surface soils should be scarified and moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content) and compacted to a minimum of 95 percent of the maximum dry density as determined by the Standard Proctor test (ASTM D-698) prior to placing structural fill.

Structural fill placed on slopes should be benched into the slope. Maximum bench heights should not exceed 4 feet, and bench widths should be wide enough to accommodate compaction equipment.

Structural fill shall consist of granular, non-expansive material, and it should be placed in loose lifts not exceeding 8 to 12 inches, moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content) and compacted to a minimum of 95 percent of the maximum dry density as determined by the Standard Proctor test, ASTM D-698. The materials should be compacted by mechanical means.

Materials used for structural fill should be approved by RMG prior to use. Structural fill should not be placed on frozen subgrade or allowed to freeze during moisture conditioning and placement.

To verify the condition of the compacted soils, density tests should be performed during placement. The first density tests should be conducted when 24 inches of fill have been placed.

Moisture Conditioned Structural Fill

Areas to receive moisture-conditioned structural fill should have topsoil, organic material, or debris removed. The upper 6 inches of the exposed surface soils should be scarified and moisture conditioned to -1 to +3 percent optimum moisture content and compacted to a minimum of 95 percent of the maximum dry density as determined by the Standard Proctor test (ASTM D-698) prior to placing structural fill.

Moisture-conditioned structural fill placed on slopes should be benched into the slope. Maximum bench heights should not exceed 4 feet, and bench widths should be wide enough to accommodate compaction equipment.

Moisture conditioned structural fill shall consist of a moisture-conditioned, on-site cohesive fill material. The bedrock encountered on site is not suitable to be used as moisture conditioned structural fill. The fill material shall be moisture conditioned and replaced as follows:

- Fill shall be free of deleterious material and shall not contain rocks or cobbles greater than 6 inches in diameter.
- Fill materials do not require processing in a stockpile, but shall be moisture-conditioned to -1 to +3 percent optimum moisture content (as determined by the Standard Proctor test, ASTM D-698), with an average of not less than optimum moisture content.
- The moisture-conditioned materials should be placed in maximum 6" compacted lifts. These materials should be compacted to a minimum of 95 percent of the maximum dry density as determined by the Standard Proctor test (ASTM D-698). Material not meeting the above requirements shall be reprocessed.

Materials used for moisture-conditioned structural fill should be approved by RMG prior to use. Moisture-conditioned structural fill should not be placed on frozen subgrade or allowed to freeze during moisture conditioning and placement.

To verify the condition of the compacted soils, density tests should be performed during placement. The first density tests should be conducted when 24 inches of fill have been placed.

FOUNDATION OPTIONS

Anticipated Foundation Systems

A spread footing foundation system may be utilized at this site bearing on the appropriate material as determined during the Open Hole Excavation. A maximum allowable bearing pressure of 1,500 psf with a minimum dead load of 500 psf may be used for design purposes. Foundation components must be below all organic material and should extend 30 inches or more below the lowest exterior finished grade for frost protection. The foundation design should be prepared by a qualified Colorado Registered Professional Engineer using the recommendations presented in this report. This foundation system should be designed to span a minimum of 10 feet under the design loads.

Open Excavation Observations

During construction, foundation excavations should be observed by RMG prior to placing structural fill, forms or concrete to verify the foundation bearing conditions for each structure.

INTERIOR FLOOR SYSTEMS

Interior Floor Slabs

Vertical slab movement of one to two inches is considered possible for all soil types. In some cases, vertical movement may exceed this range. If movement and associated damage to floors and finishes cannot be tolerated, a structural floor system should be used.

Floor slabs should be separated from structural components to allow for vertical movement. Control and construction joints should be placed in accordance with the latest guidelines and standards published by the American Concrete Institute (ACI) and applicable local Building Code requirements.

Interior Partitions

Interior non-bearing partitions and attached furnishings (e.g., cabinets, shower stalls, etc.) on concrete slabs should be constructed with a void so that they do not transmit floor slab movement to the roof or overlying floor. A void of at least 1-1/2 inches is recommended beneath non-bearing partitions. The void may require reconstruction over the life of the structure to re-establish the void due to vertical slab movement.

LATERAL EARTH PRESSURES

Foundation walls should be designed to resist lateral earth pressures. For cohesive, non-expansive backfill materials such as the on-site clay soils (native and fill), we recommend an active fluid pressure of 50 pcf, an at-rest fluid pressure of 70 pcf, and a passive pressure of 240 pcf be used for design. Expansive soils or bedrock should not be used as backfill against foundation walls.

The above lateral earth pressure applies to level, drained backfill conditions. Equivalent Fluid Pressures for sloping/undrained conditions should be determined on an individual basis.

SURFACE GRADING AND DRAINAGE

Grading and Irrigation

The ground surface should be sloped from the building with a minimum gradient of 10 percent for the first 10 feet. This is equivalent to 12 inches of fall across this 10-foot zone. If a 10-foot zone is not possible on the upslope side of the structure, then a well-defined swale should be created a minimum 5 feet from the foundation and sloped parallel with the wall with a minimum slope of 2 percent to intercept the surface water and transport it around and away from the structure. Roof drains should extend across backfill zones and landscaped areas to a region that is graded to direct flow away from the structure. Homeowners should maintain the surface grading and drainage recommended in this report to help prevent water from being directed toward and/or ponding near the foundations.

Landscaping should be selected to reduce irrigation requirements. Plants used close to foundation walls should be limited to those with low moisture requirements and irrigated grass should not be located within 5 feet of the foundation. To help control weed growth, geotextiles should be used below landscaped areas adjacent to foundations. Impervious plastic membranes are not recommended.

Irrigation devices should not be placed within 5 feet of the foundation. Irrigation should be limited to the amount sufficient to maintain vegetation. Application of more water will increase the likelihood of slab and foundation movements.

The recommendations listed in this report are intended to address normal surface drainage conditions, assuming the presence of groundcover (established vegetation, paved surfaces, and/or structures) throughout the regions upslope from this structure. However, groundcover may not be present due to a variety of factors (ongoing construction/development, wildfires, etc.). During periods when groundcover is not present in the "upslope" regions, higher than normal surface drainage conditions may occur, resulting in perched water tables, excess runoff, flash floods, etc. In these cases, the surface drainage recommendations presented herein (even if properly maintained) may not mitigate all groundwater problems or moisture intrusion into the structure. We recommend that the site plan be prepared with consideration of increased runoff during periods when groundcover is not present on the upslope areas.

Perimeter Drain

A subsurface perimeter drain is recommended around portions of the structure which will have habitable or storage space located below the finished ground surface. This includes crawlspace areas but not the walkout trench, if applicable.

The perimeter drain can be installed as an interior (if a minimum of six inches of free draining aggregate is placed beneath the slab) or exterior perimeter drain system. The perforated drainage pipe should be installed so the top of the pipe is not above the top of the footing and should be surrounded by material to reduce the infiltration of silt into the drainage pipe. The pipe should be installed in one of the following manners:

1) The pipe may be installed as level as possible as long as the pipe is placed in a minimum of six inches of gravel or crushed stone and exits into a sump pit with mechanical means to remove the water.

Or

2) The pipe may be installed as a gravity system with a minimum 1/8 inch fall per 1 foot length surrounded by a minimum six inches of gravel or crushed stone that either daylights to allow free flow drainage or exits into a sump pit with mechanical means to remove the water.

A subsurface perimeter drain is designed to intercept some types of subsurface moisture and not others. Therefore, the drain could operate properly and not mitigate all moisture problems relating to foundation performance or moisture intrusion into the basement area.

CONCRETE

Sulfate testing was performed on selected samples based on ASTM C1580. Test results yielded 0.04% to 0.37% sulfate by weight, indicating the soils present medium sulfate exposure. Based on these results Type V or equivalent cement is recommended for concrete in contact with the subsurface materials. Calcium chloride should be used with caution for soils with high sulfate contents. The concrete should not be placed on frozen ground. If placed during periods of cold temperatures, the concrete should be kept from freezing. This may require covering the concrete with insulated blankets and heating. Concrete work should be completed in accordance with the latest applicable guidelines and standards published by ACI.

Recommendations for exterior concrete slabs, such as patios, driveways, and sidewalks, are not included in this report.

CLOSING

This report has been prepared for the exclusive purpose of providing geotechnical engineering information and recommendations for development described in this report. RMG should be

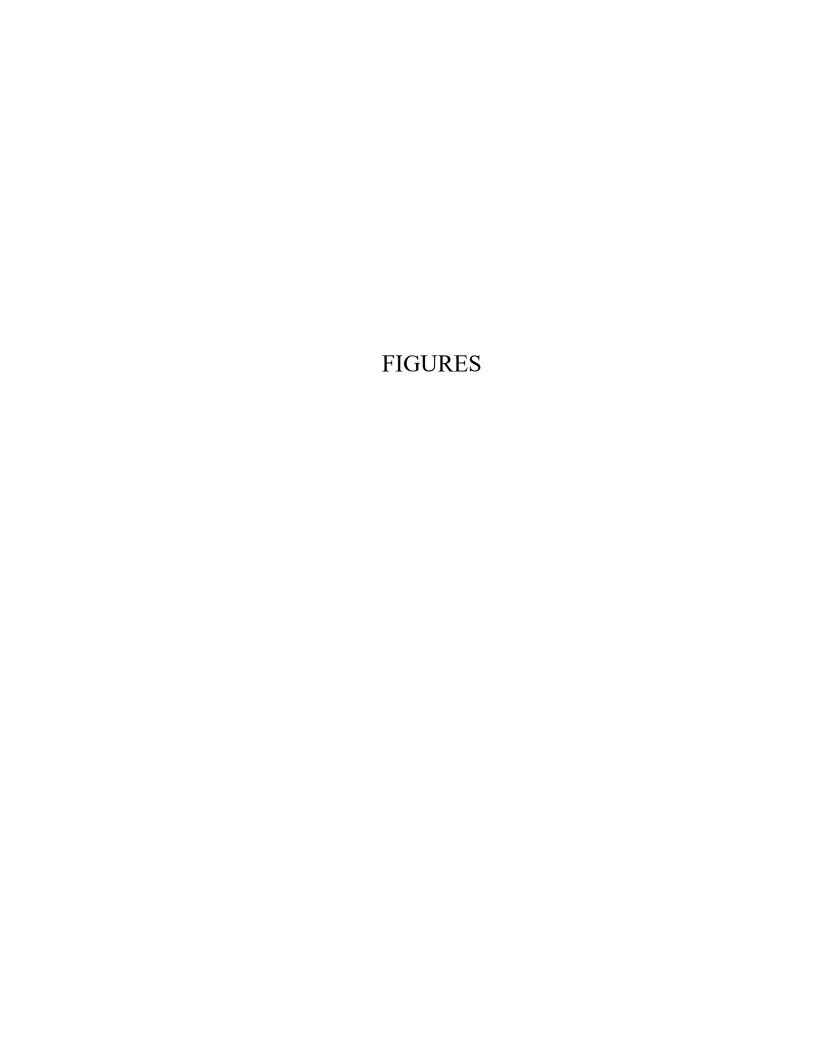
retained to review the final construction documents prior to construction to verify our findings, conclusions and recommendations have been appropriately implemented.

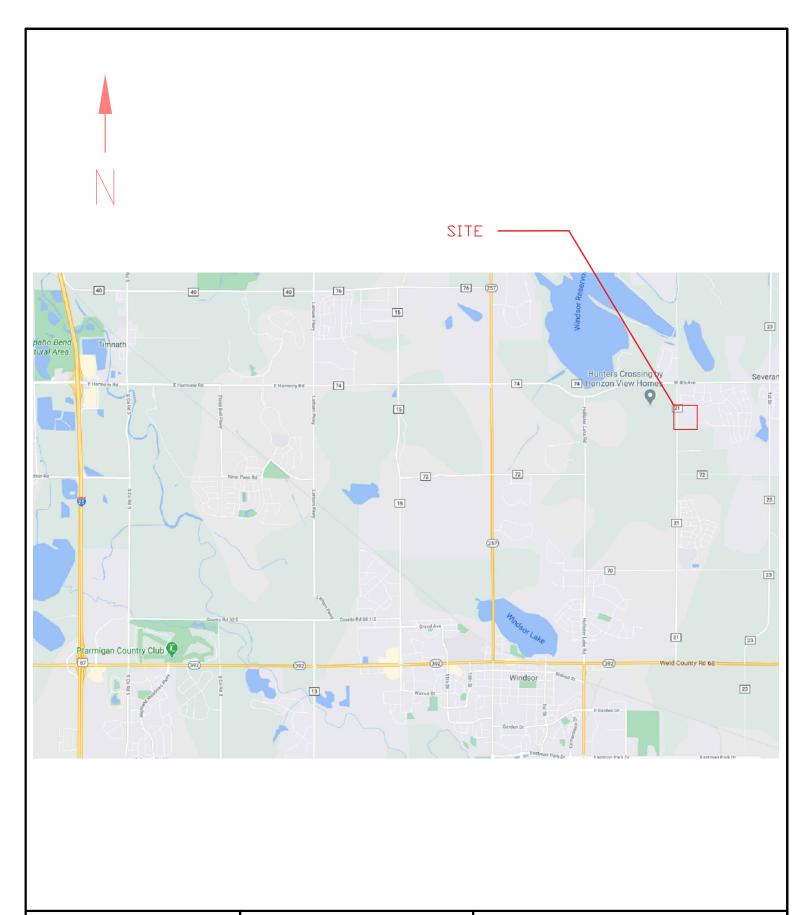
This report has been prepared for the exclusive use by **Journey Homes** for application as an aid in the design and construction of the proposed development in accordance with generally accepted geotechnical engineering practices. The analyses and recommendations in this report are based in part upon data obtained from test borings and site observations. The nature and extent of variations may not become evident until construction. If variations then become evident, RMG should be retained to review the recommendations presented in this report considering the varied condition, and either verify or modify them in writing.

Our professional services were performed using that degree of care and skill ordinarily exercised, under similar circumstances, by geotechnical engineers practicing in this or similar localities. RMG does not warrant the work of regulatory agencies or other third parties supplying information which may have been used during the preparation of this report. No warranty, express or implied is made by the preparation of this report. Third parties reviewing this report should draw their own conclusions regarding site conditions and specific construction techniques to be used on this project.

The scope of services for this project does not include, either specifically or by implication, environmental assessment of the site or identification of contaminated or hazardous materials or conditions. Development of recommendations for the mitigation of environmentally related conditions, including but not limited to biological or toxicological issues, are beyond the scope of this report. If the Client desires investigation into the potential for such contamination or conditions, other studies should be undertaken.

If we can be of further assistance in discussing the contents of this report or analysis of the proposed development, from a geotechnical engineering point-of-view, please feel free to contact us.





VICINITY MAP
SUNSET RIDGE
SUBDIVISION
THIRD FILING
SEVERANCE, COLORADO

<u>CLIENT:</u>

JOURNEY HOMES, LLC 7251 W. 20th ST., BLDG. L, STE. 200 GREELEY, CO. 80634

RMG PROJECT #180135

DATE: 3/3/21

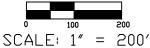


ROCKY MOUNTAIN GROUP

1601 37th STREET EVANS, CO. 80620 PHONE: (970) 330-1071 FAX: (970) 330-1252







BORE LOCATION PLAN

SUNSET RIDGE SUBDIVISION THIRD FILING SEVERANCE, COLORADO <u>CLIENT:</u>

JOURNEY HOMES, LLC 7251 W. 20th ST., BLDG. L, STE. 200 GREELEY, CO. 80634

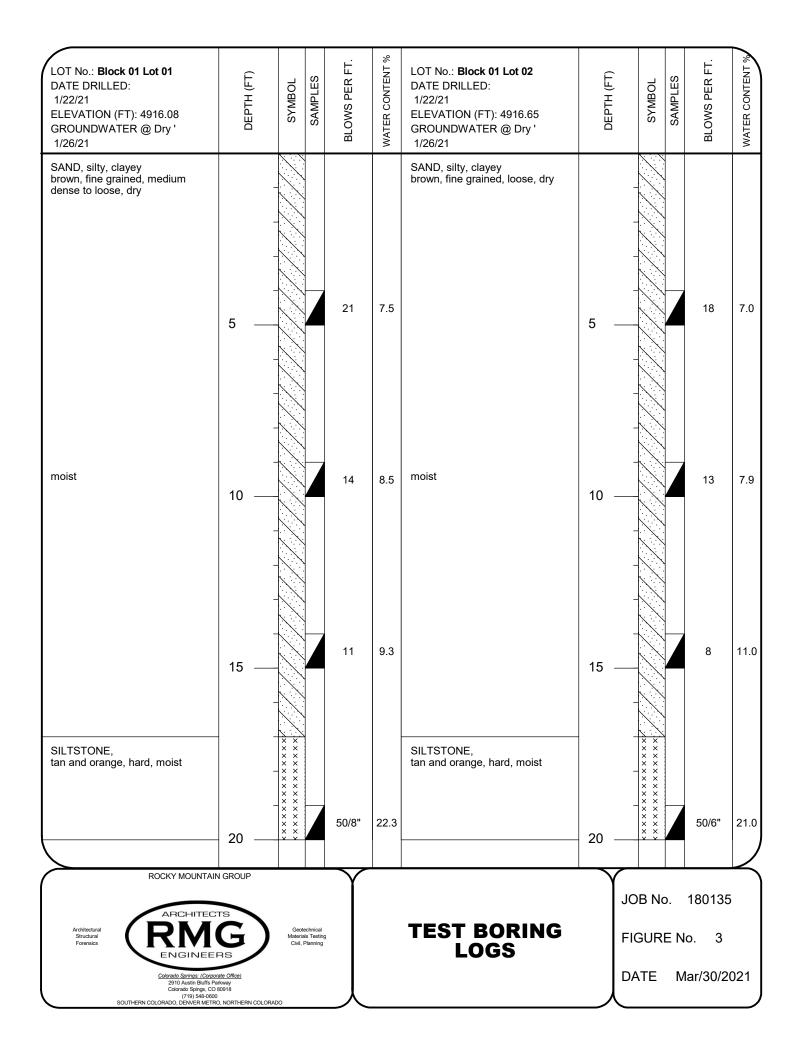
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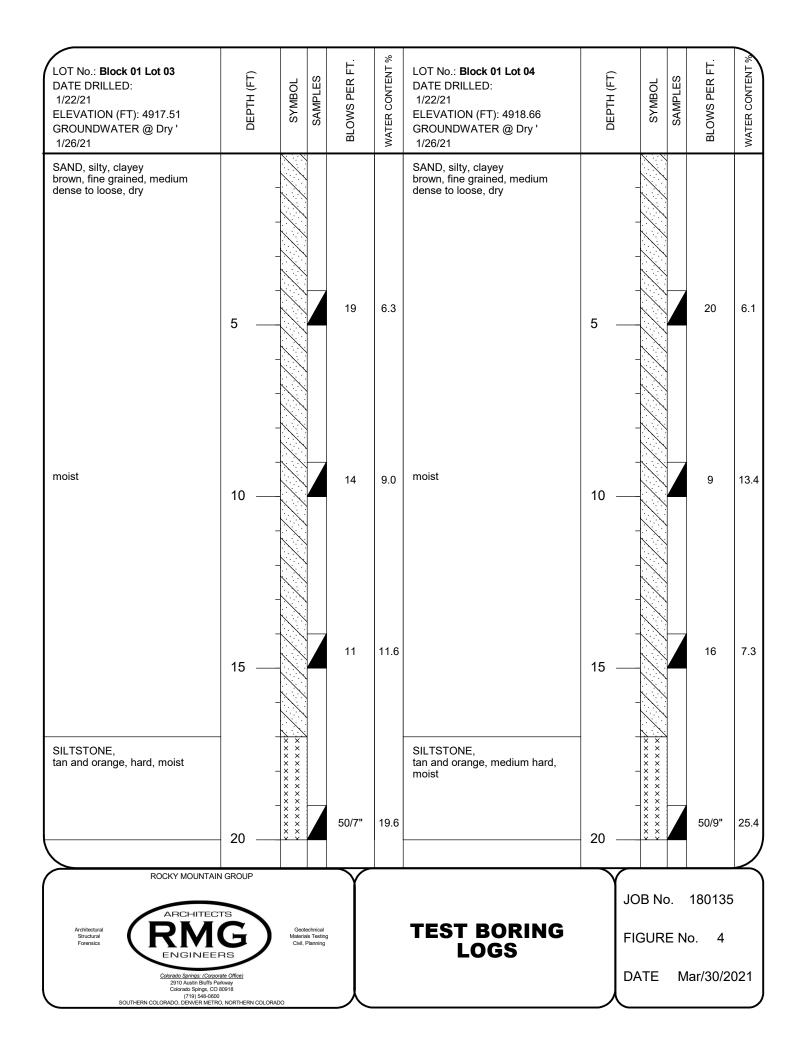
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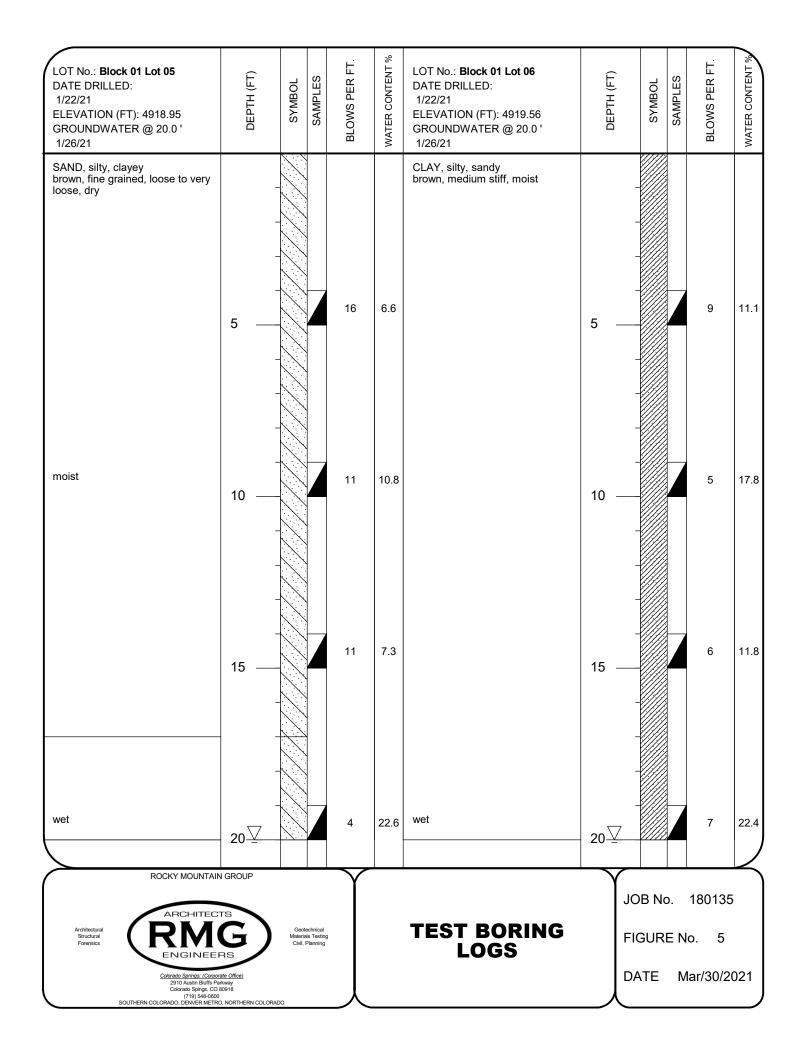


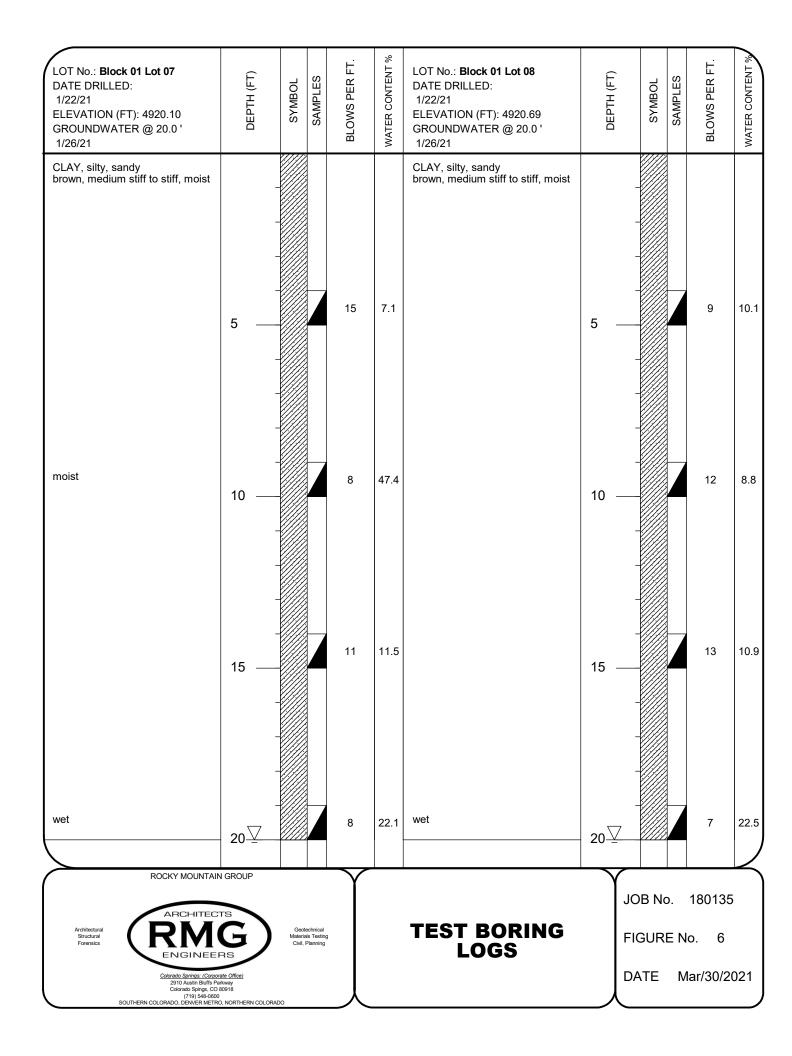
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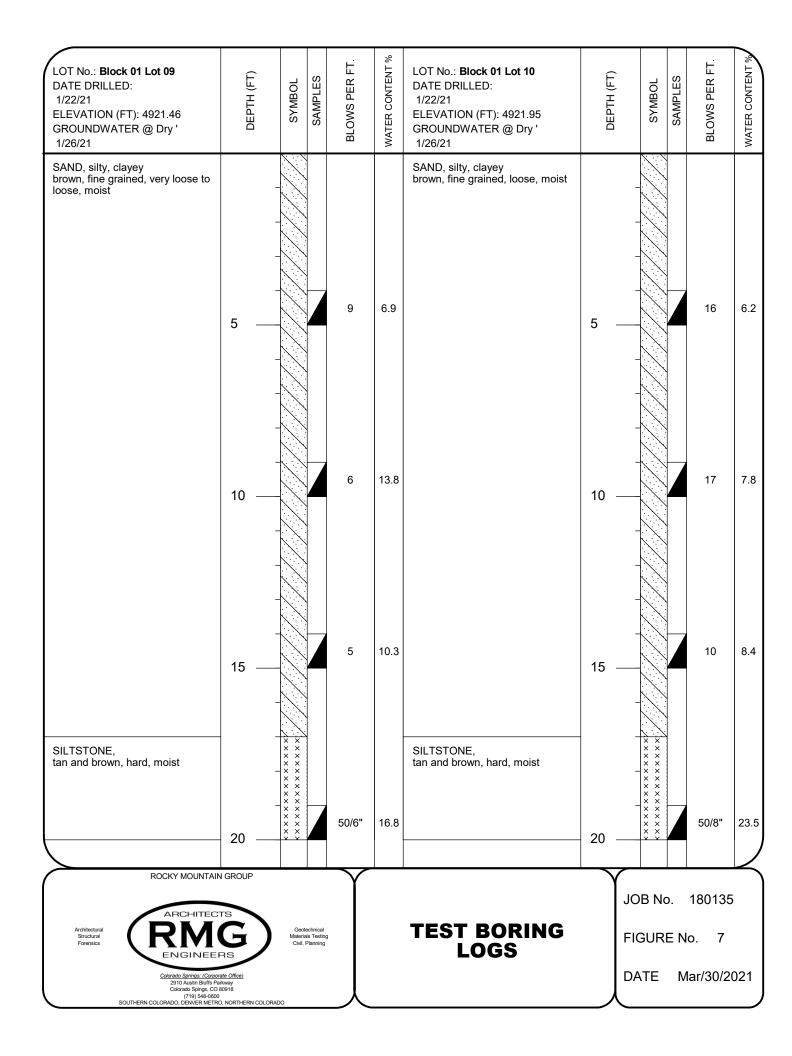
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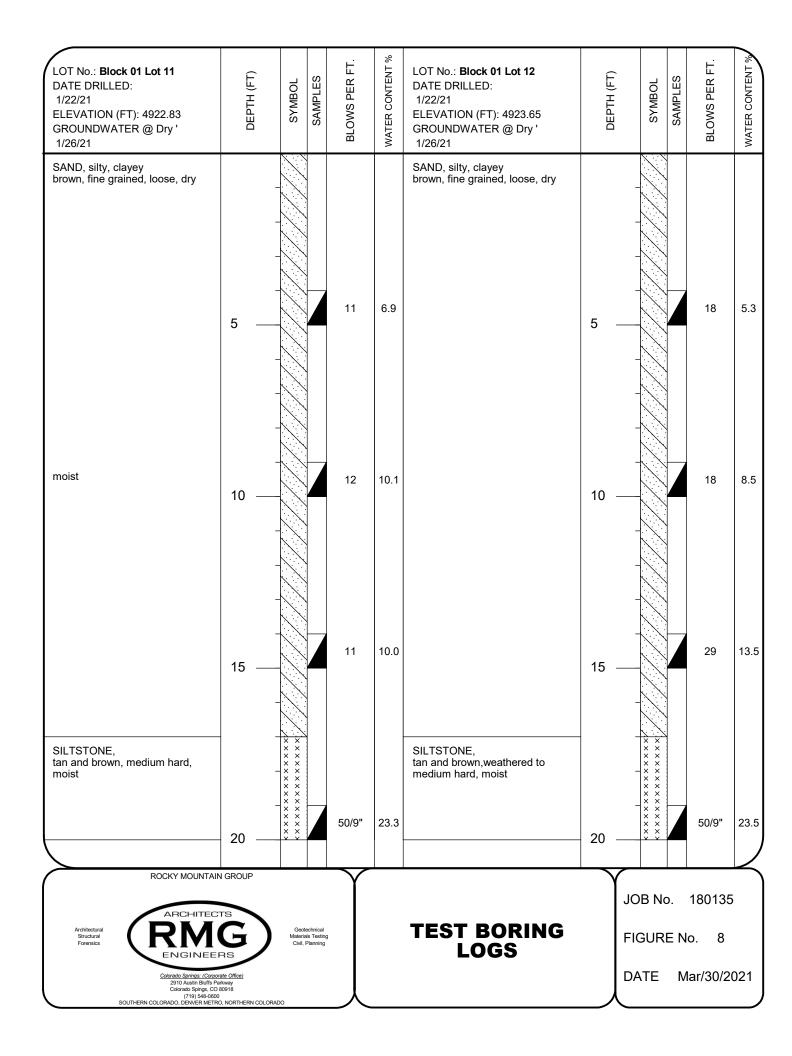


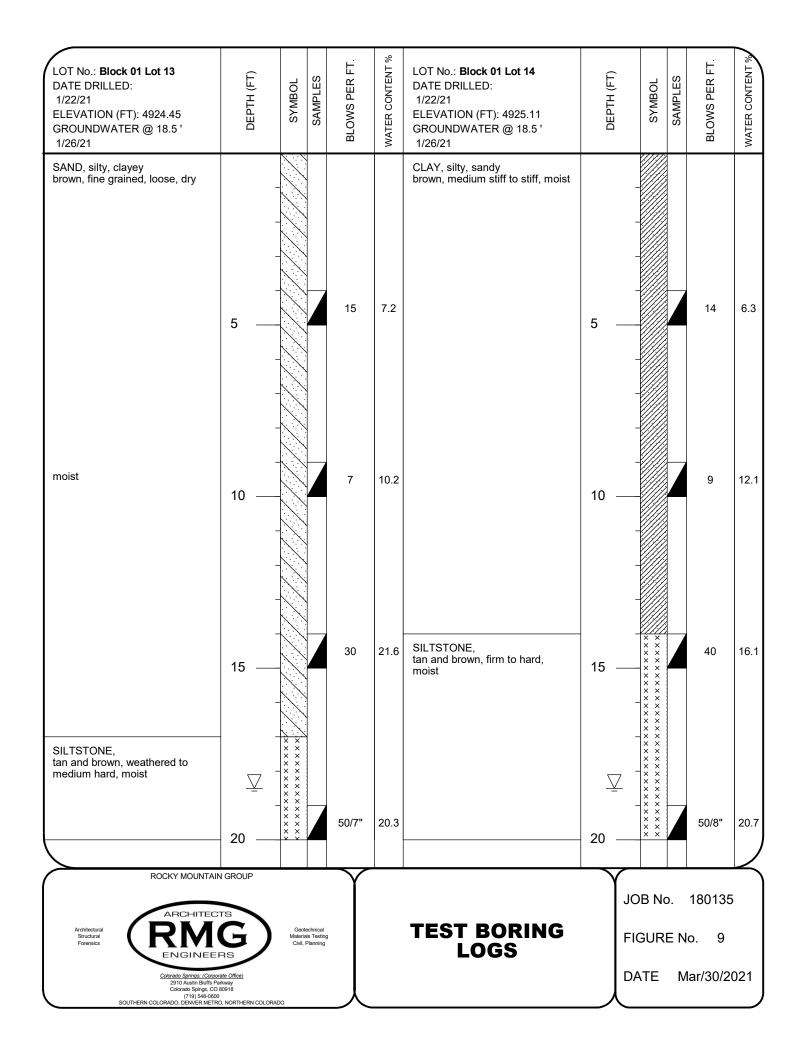


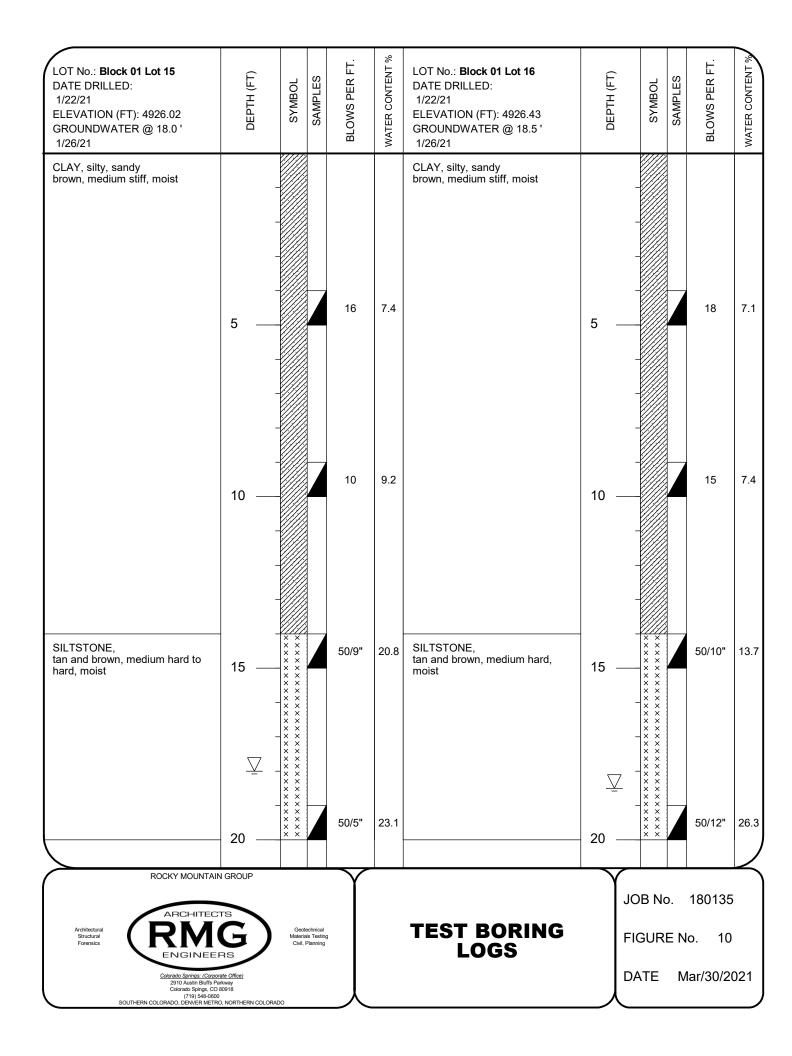


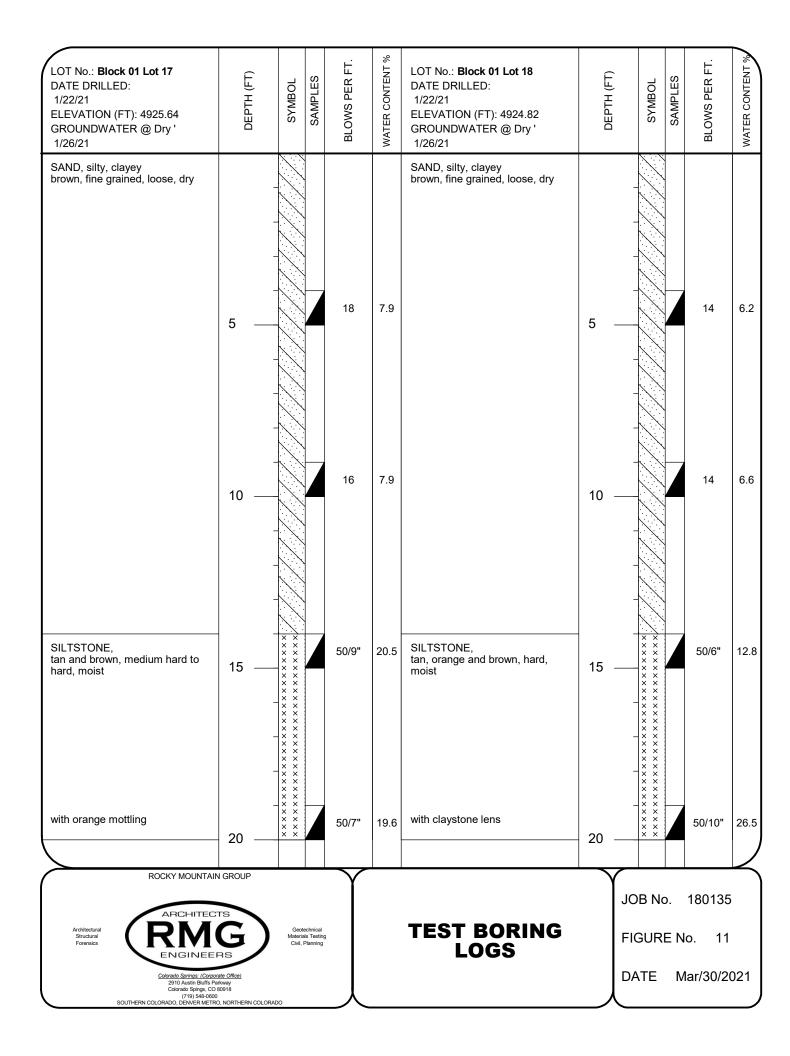


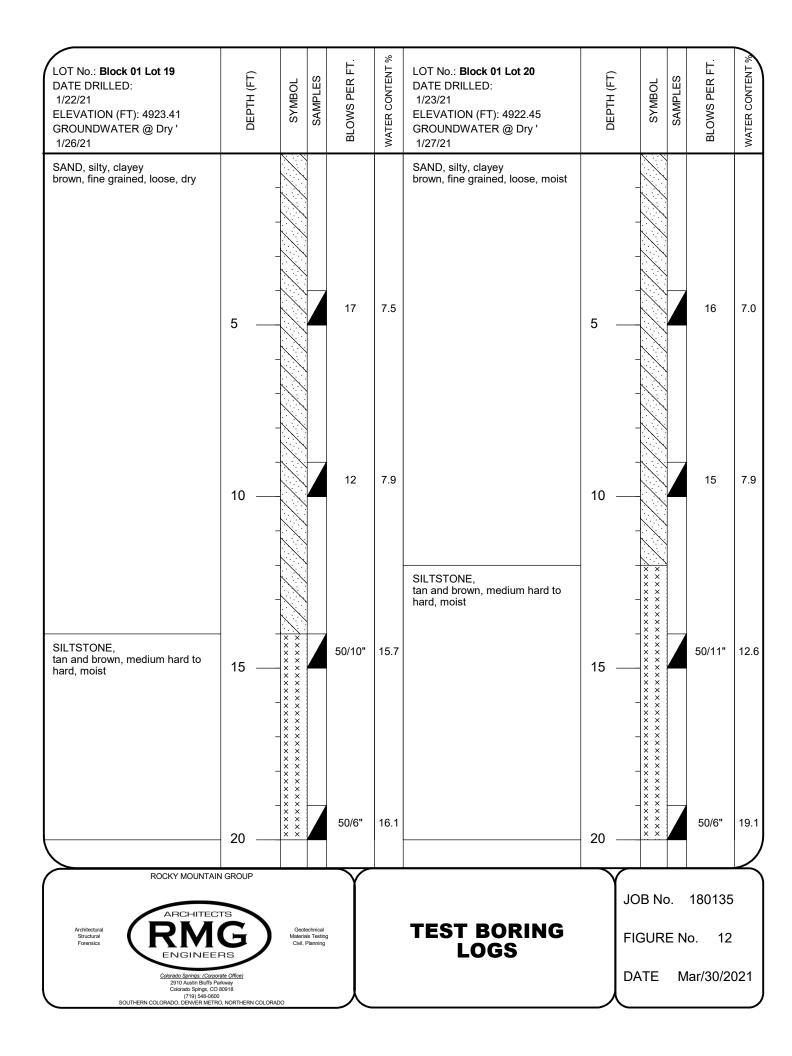


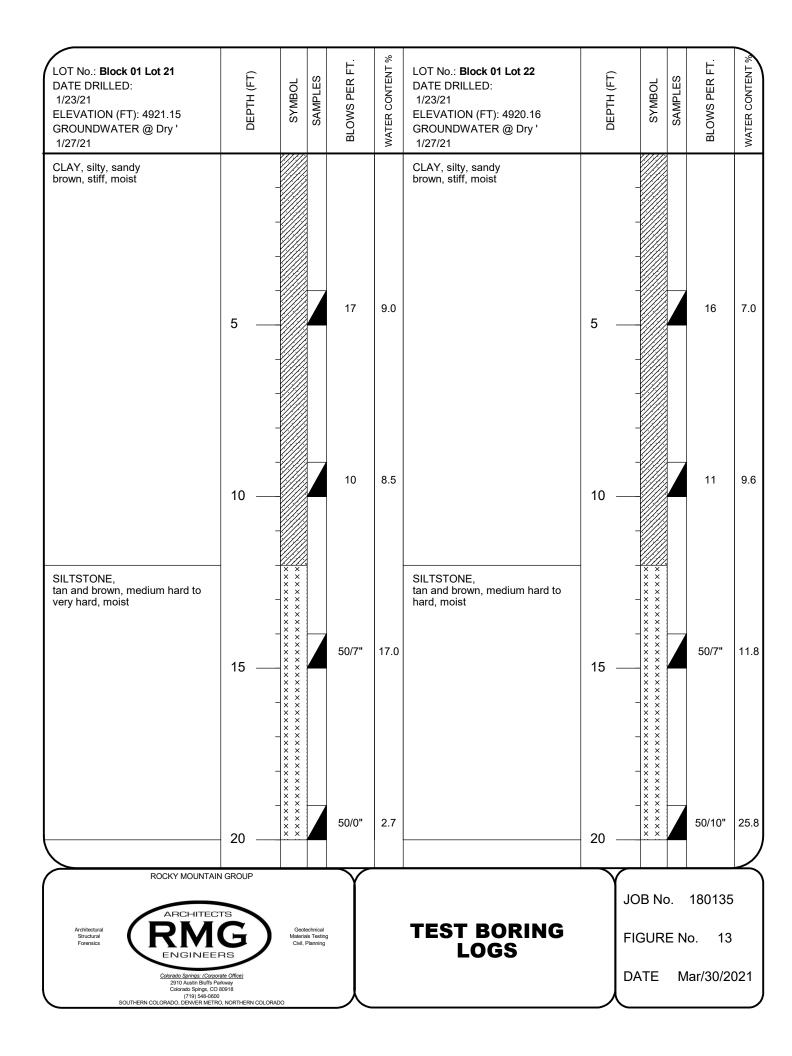


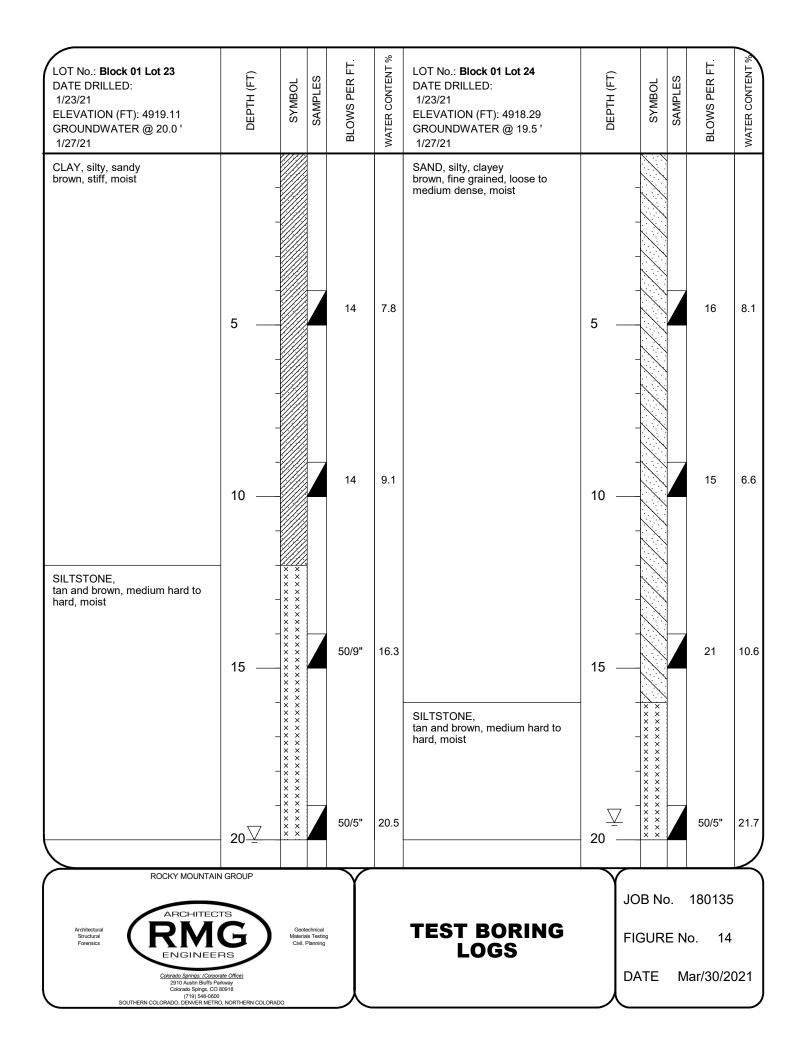


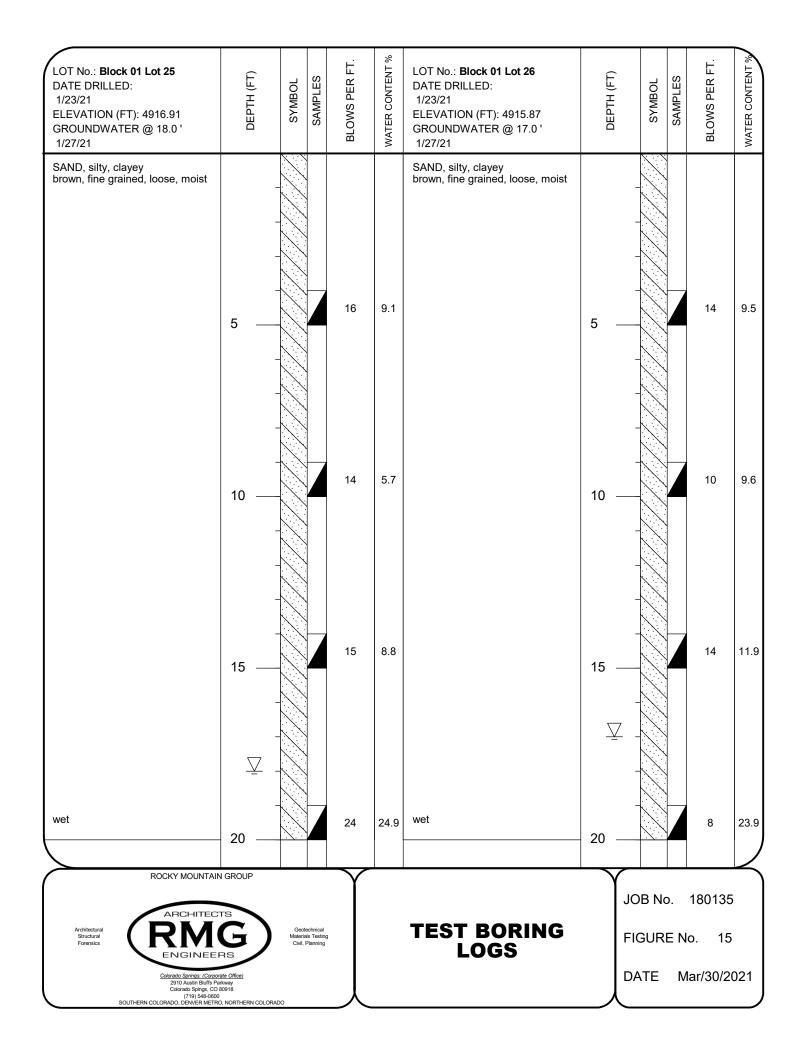


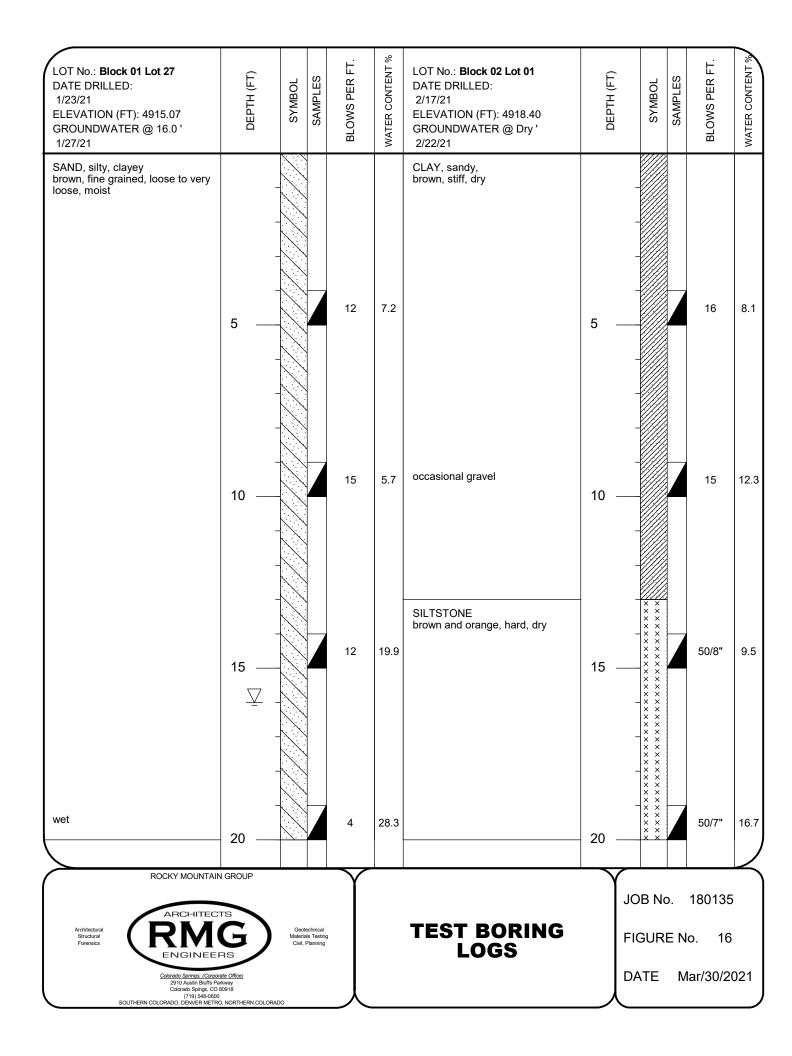


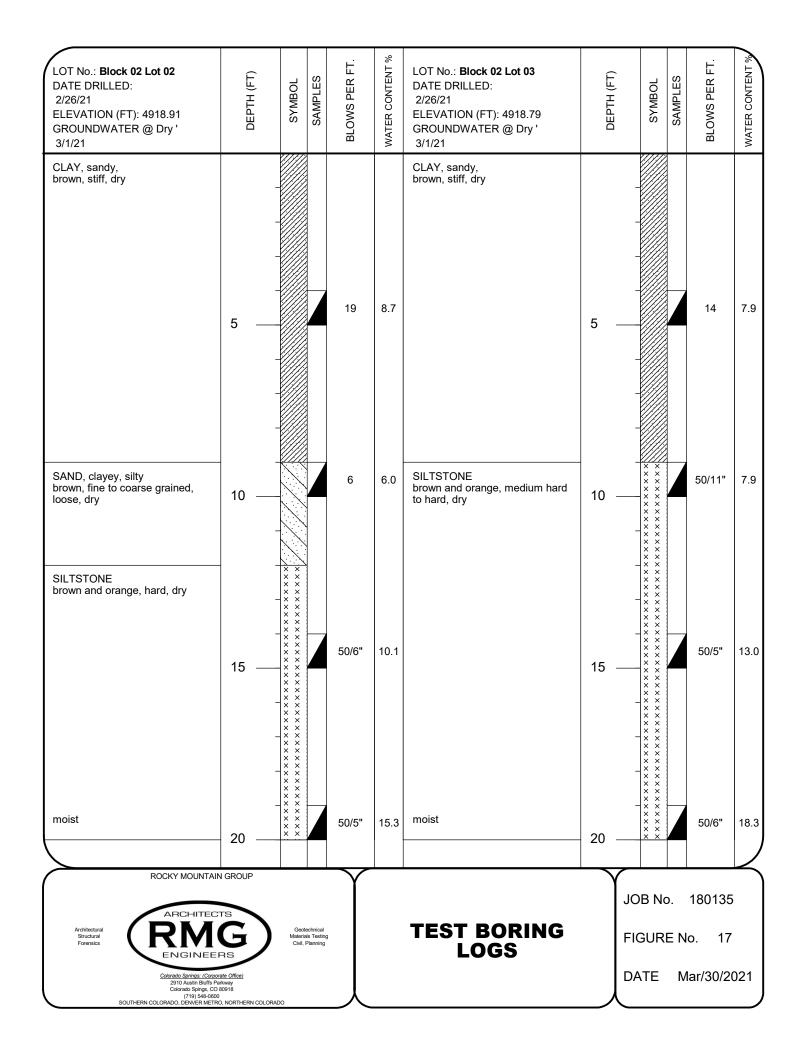


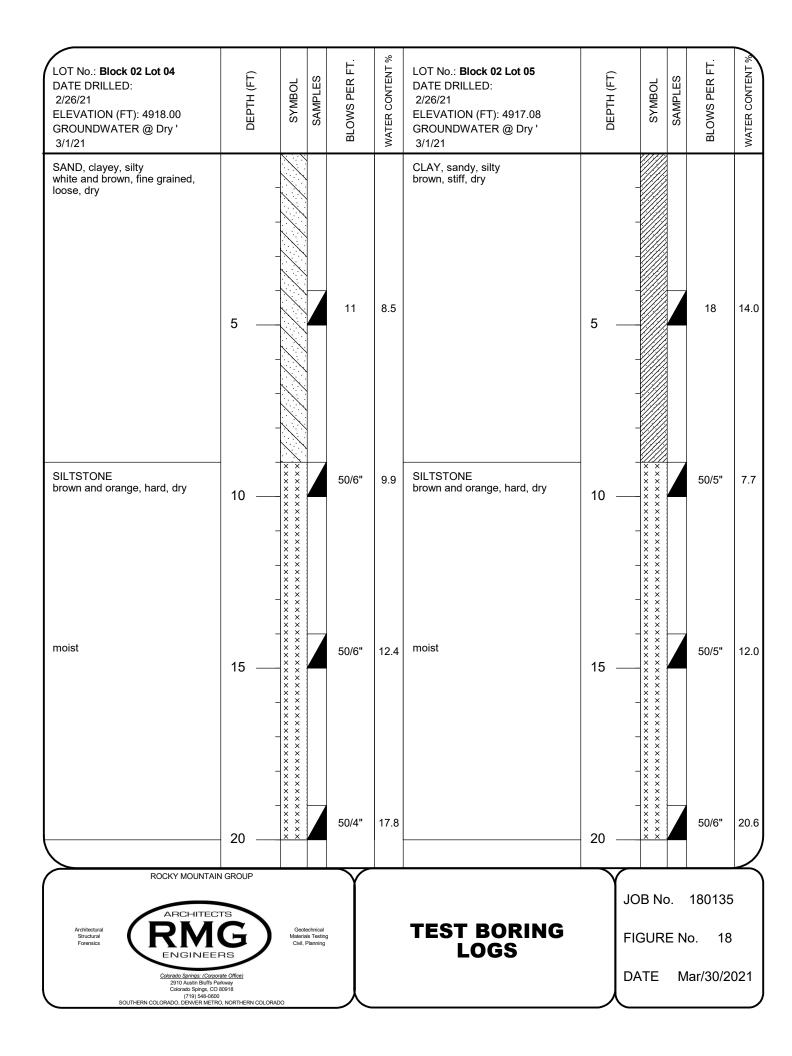


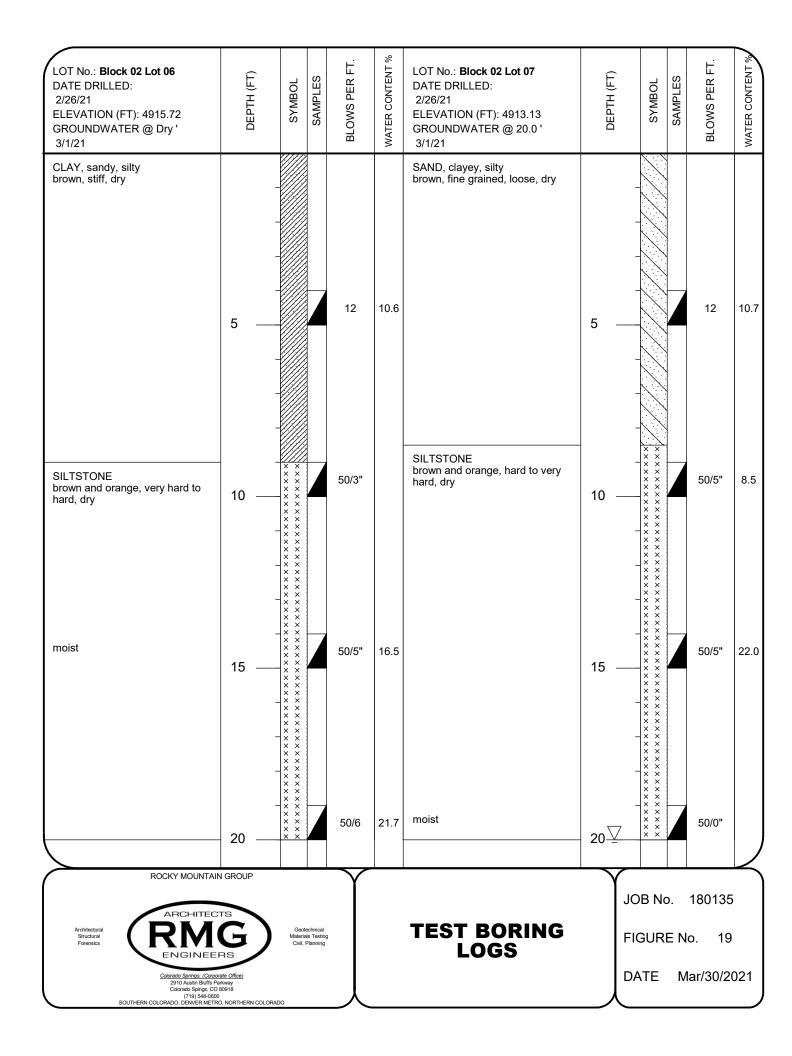


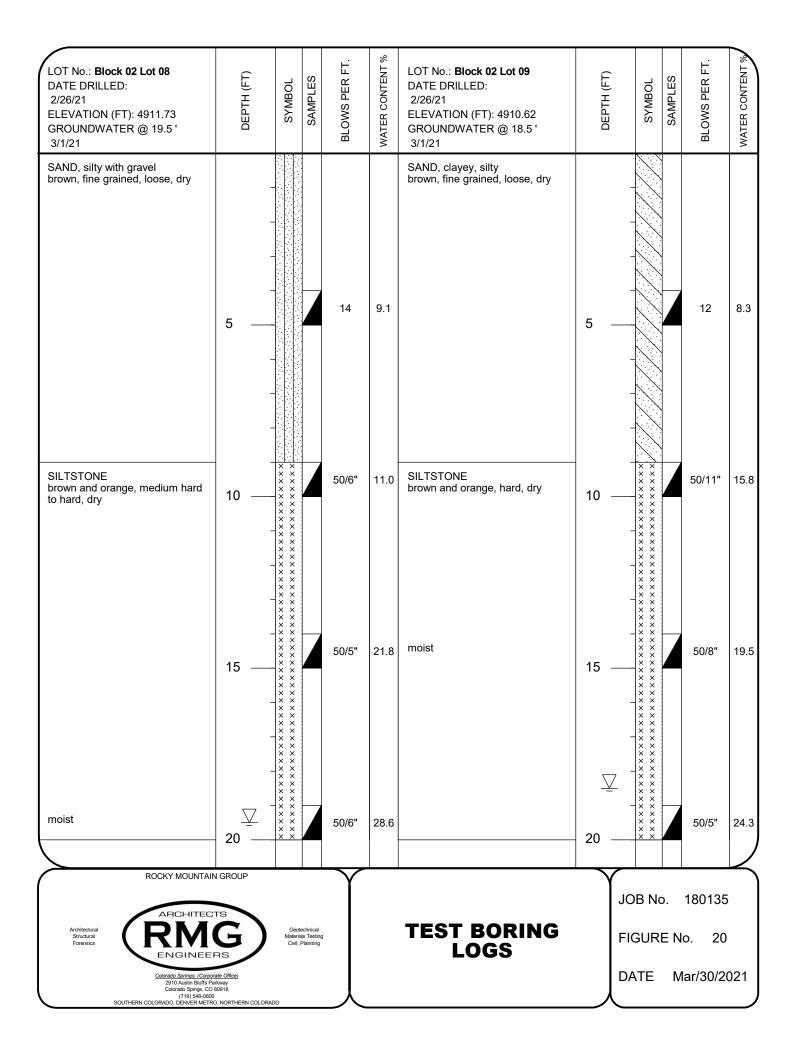


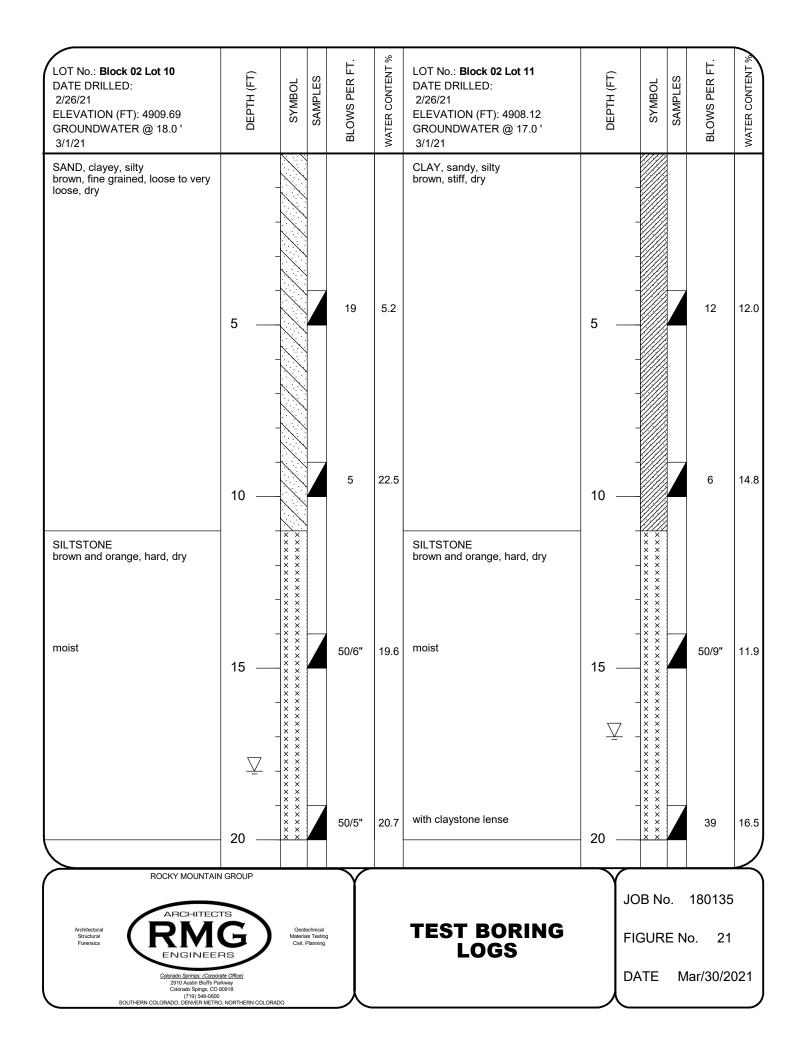


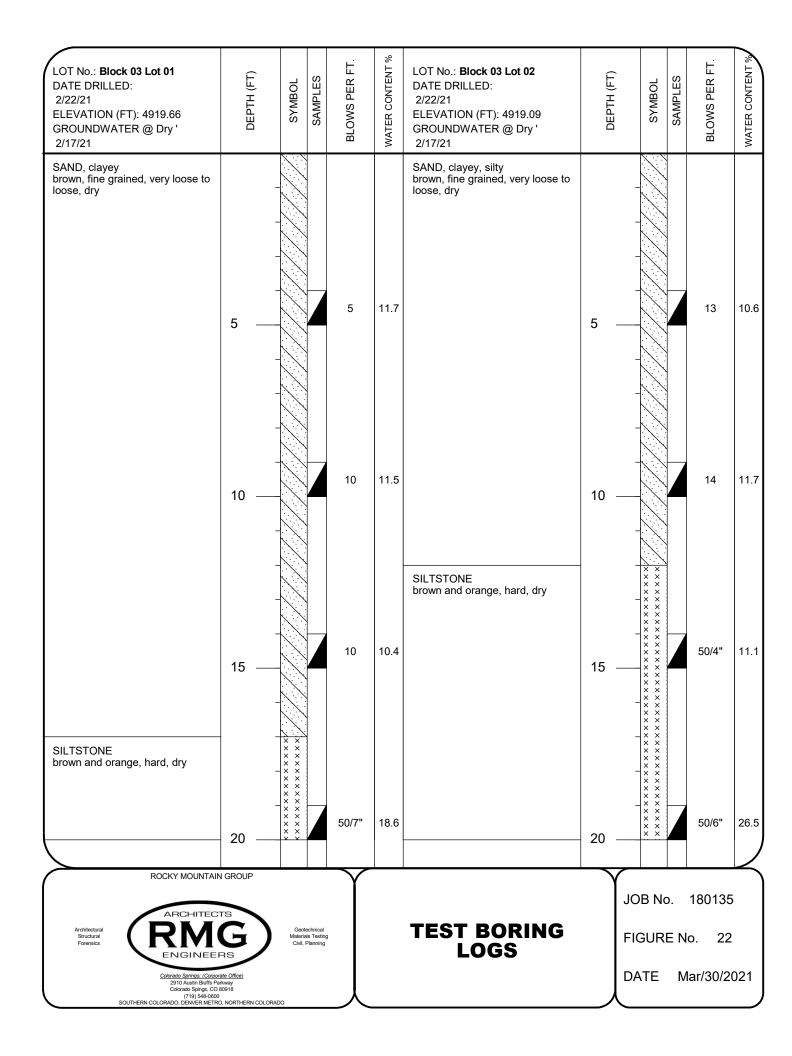


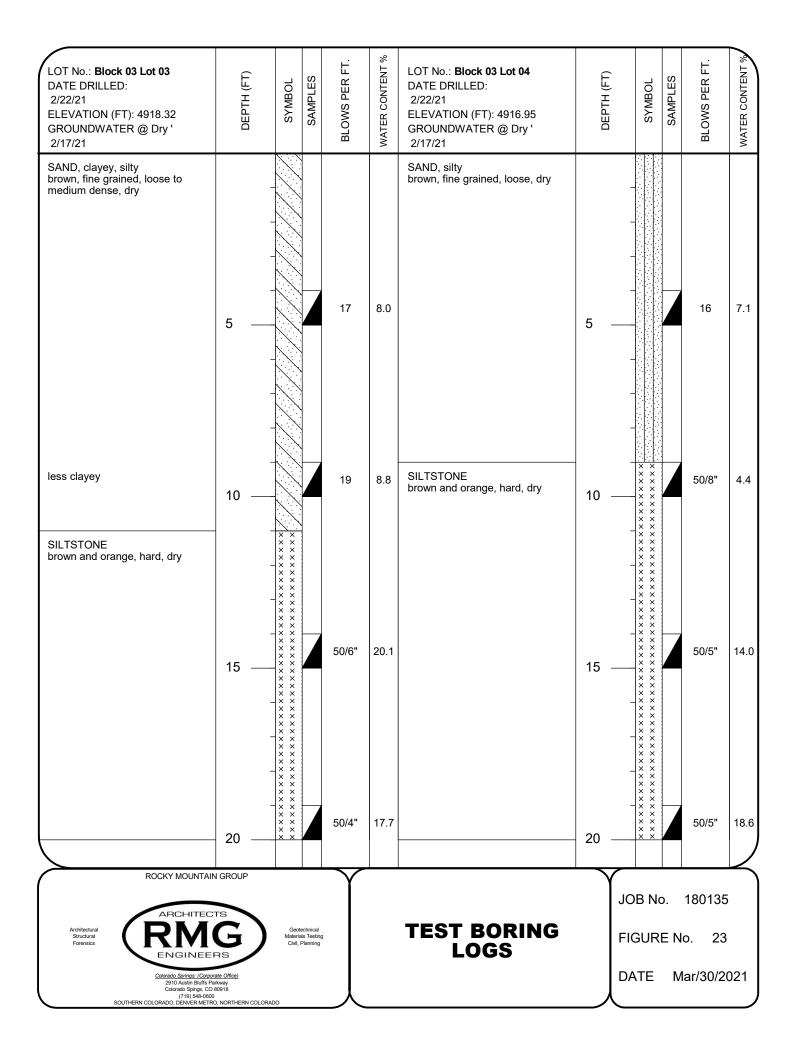


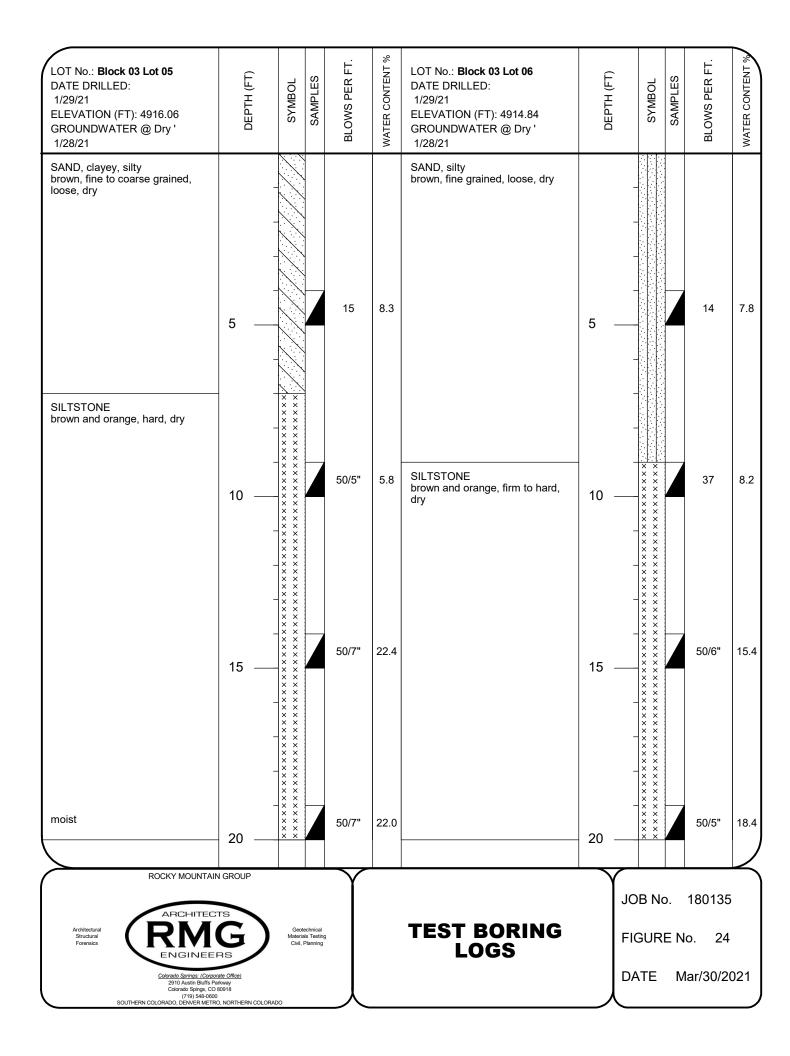


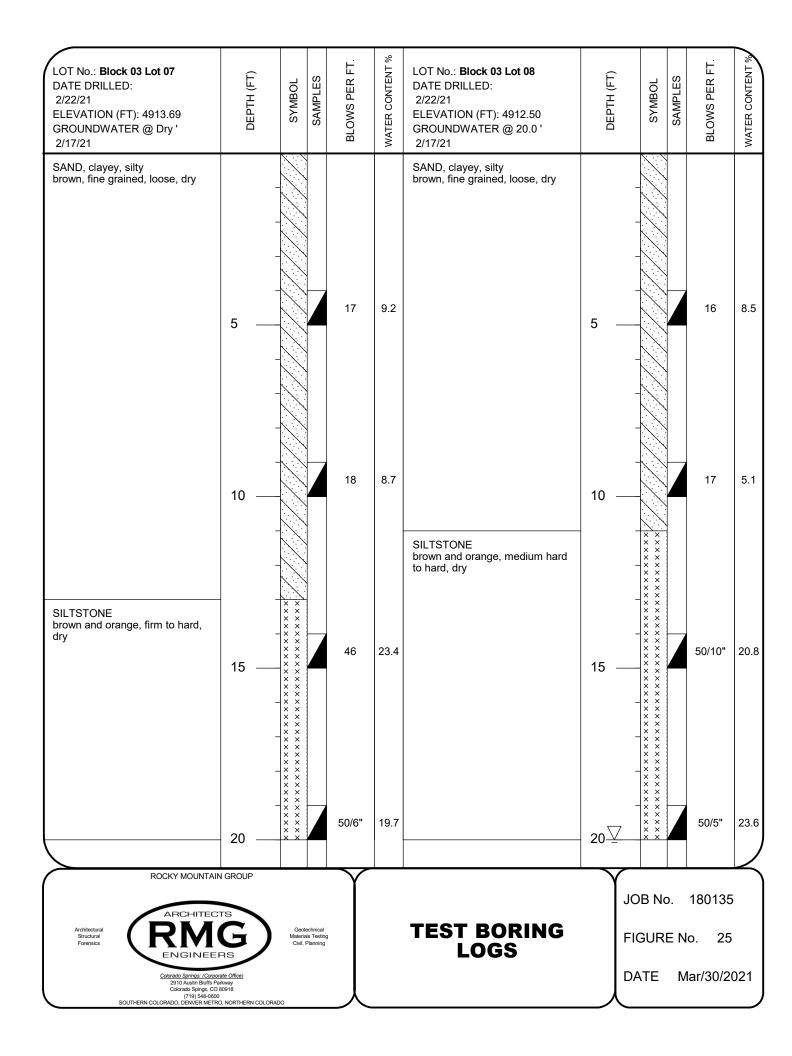


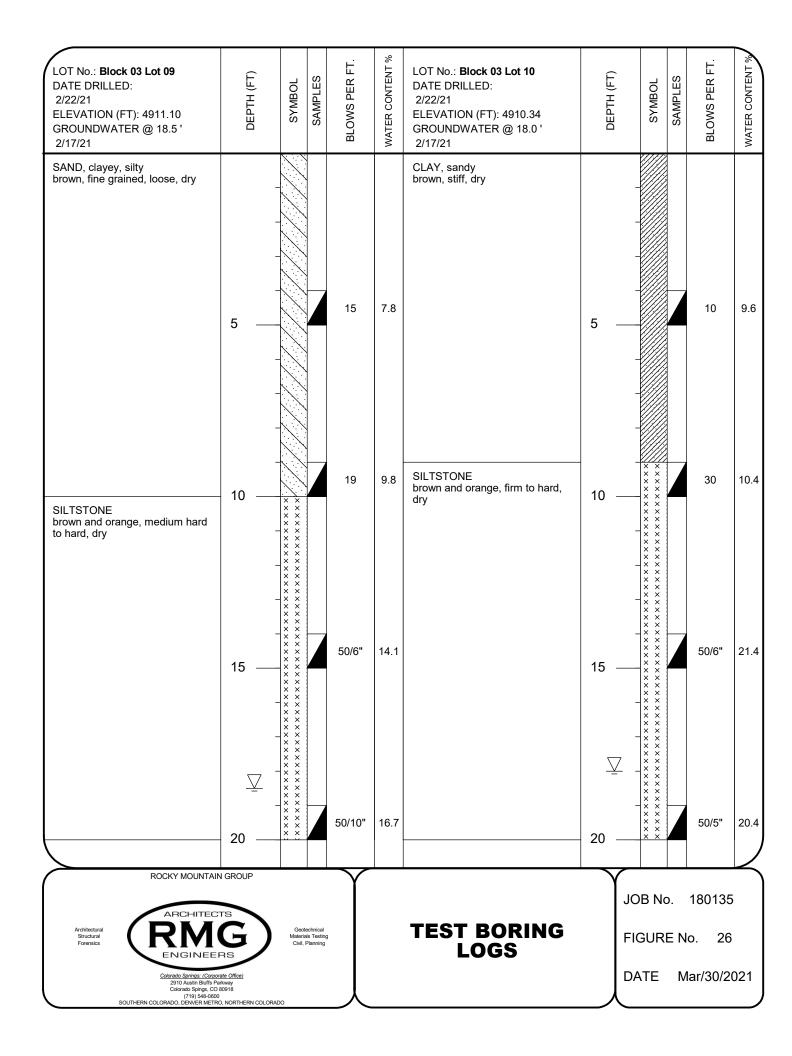


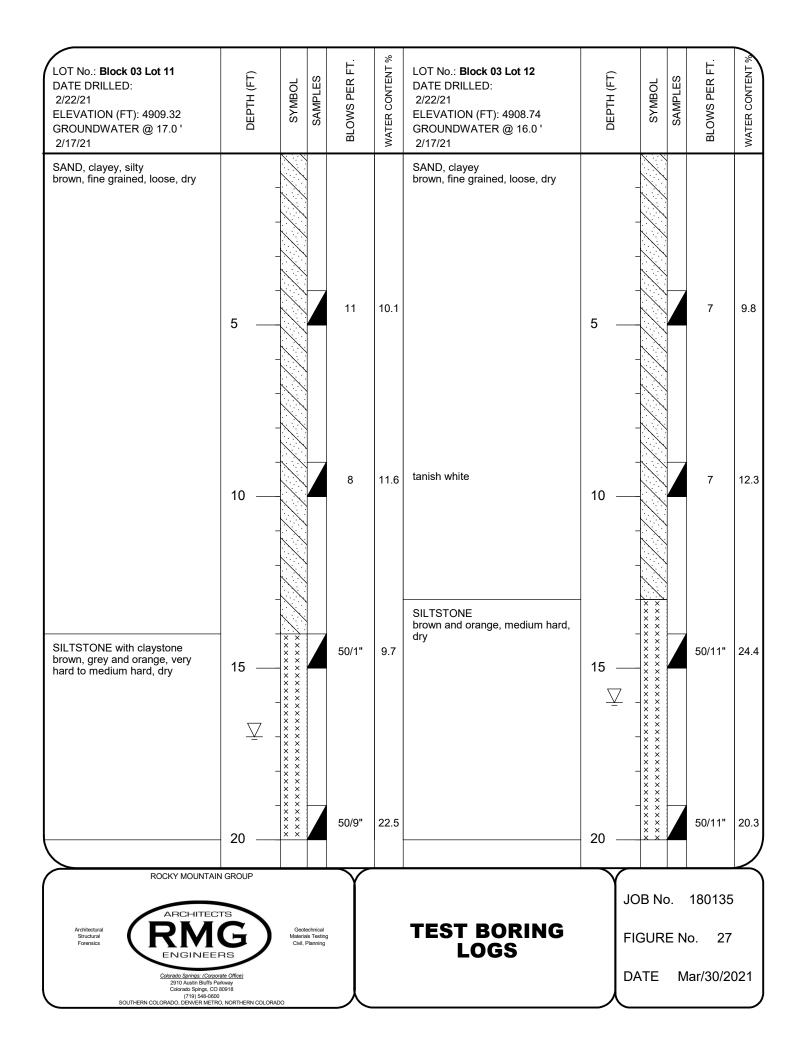


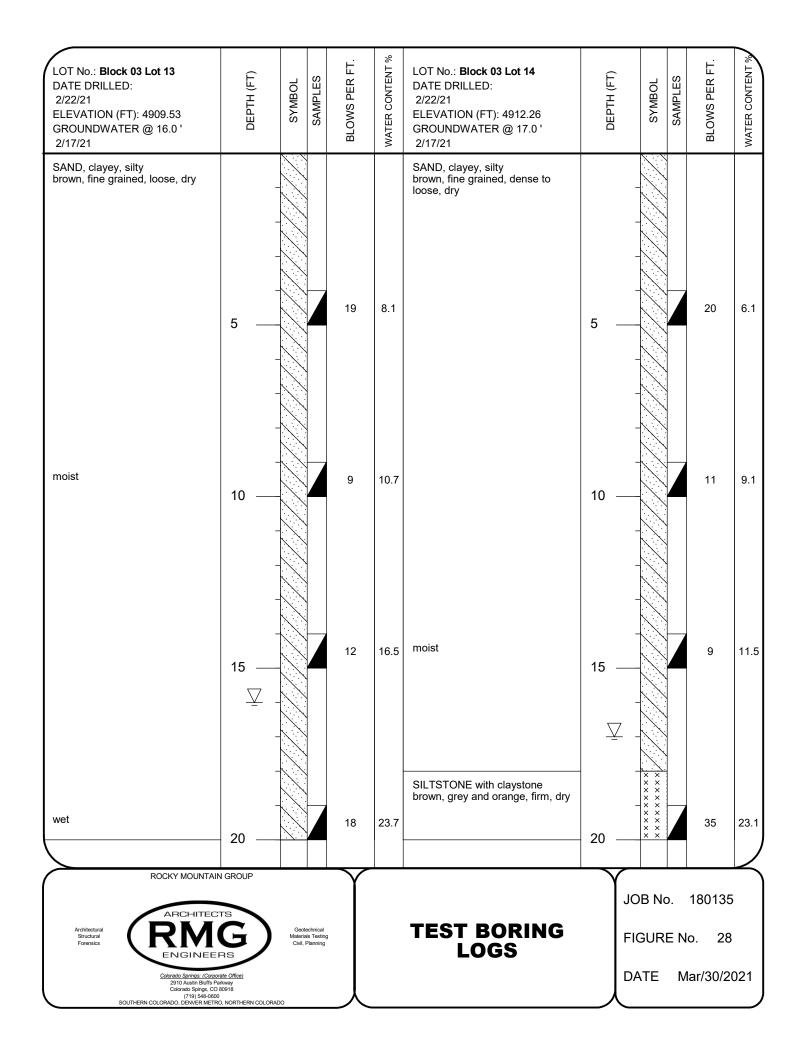


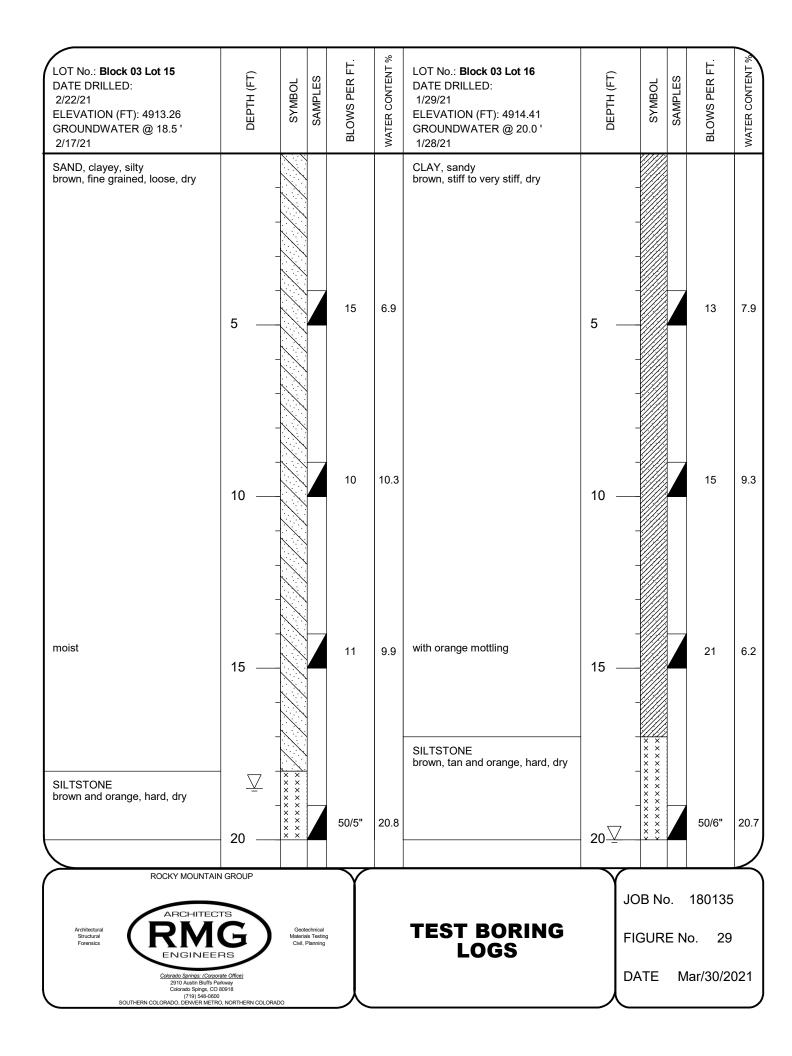


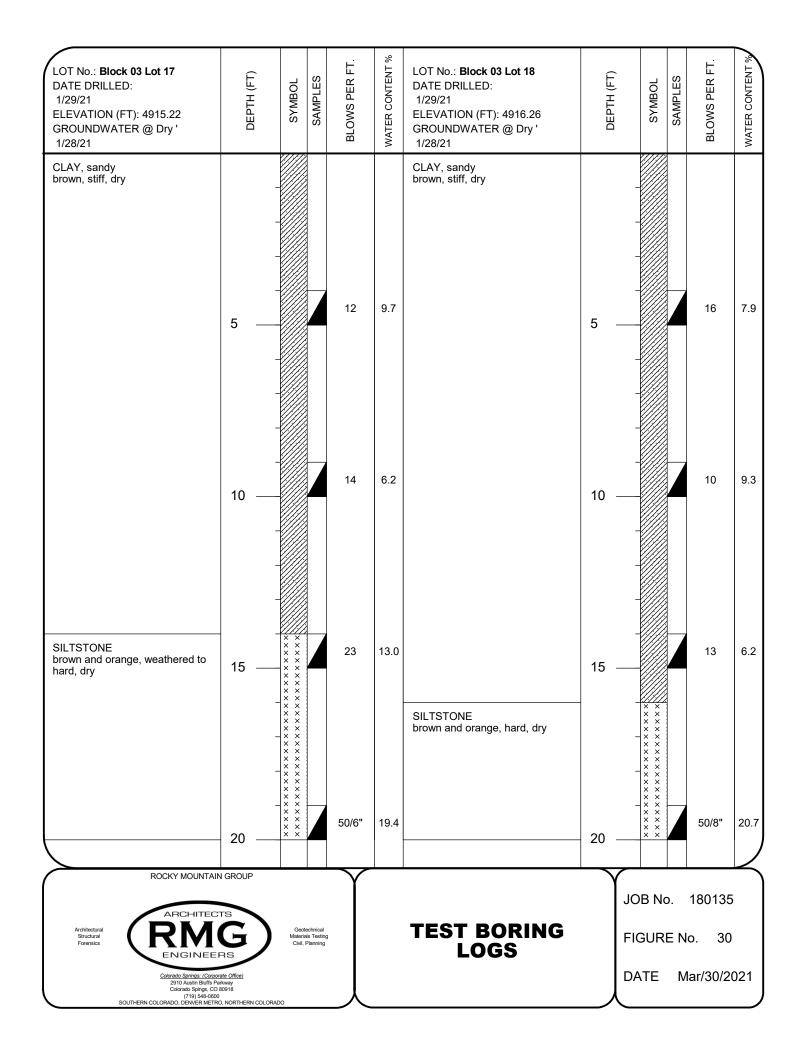


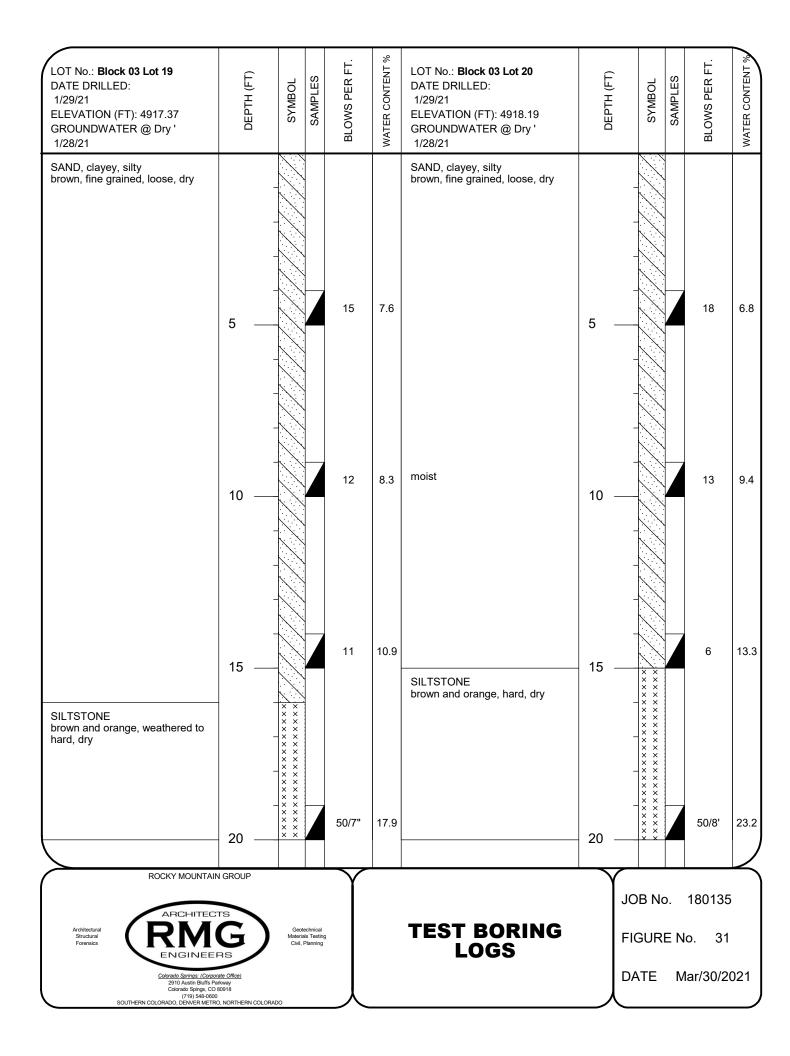


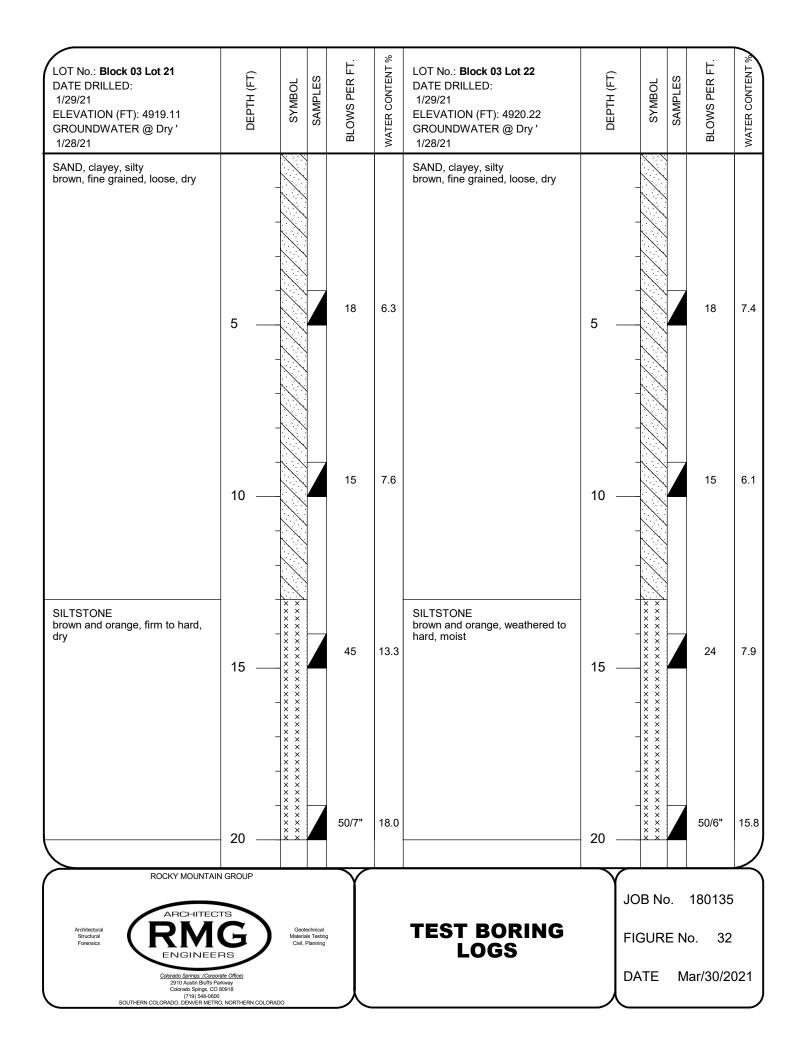


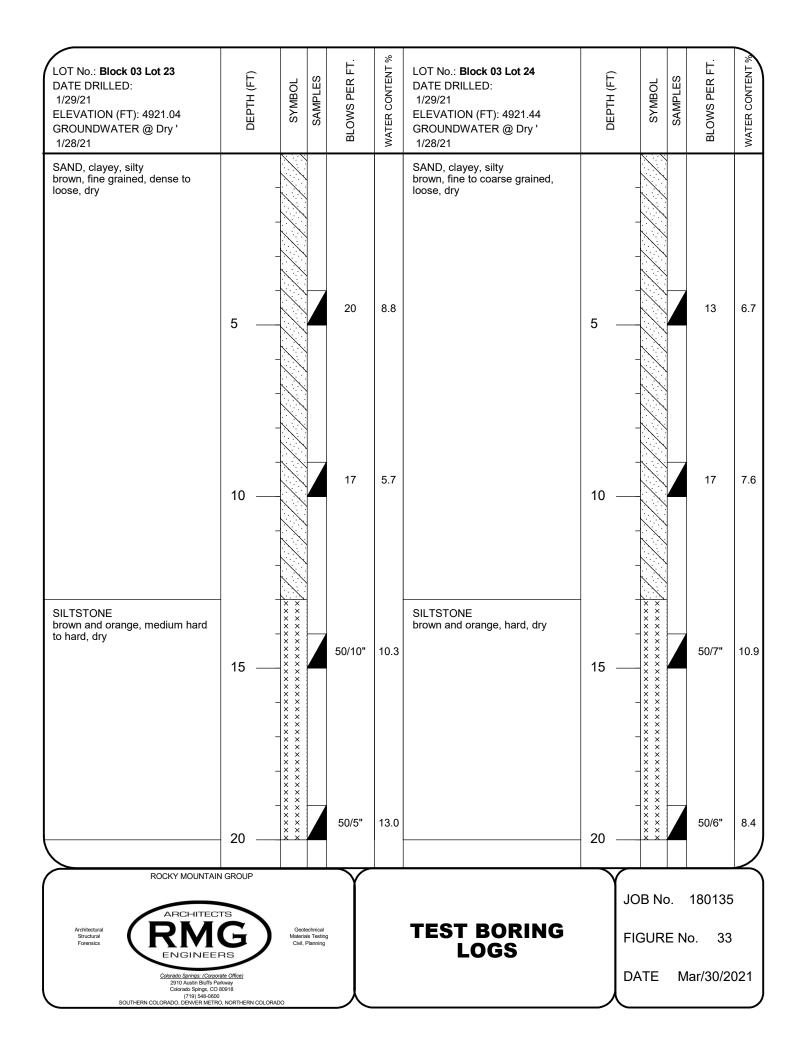


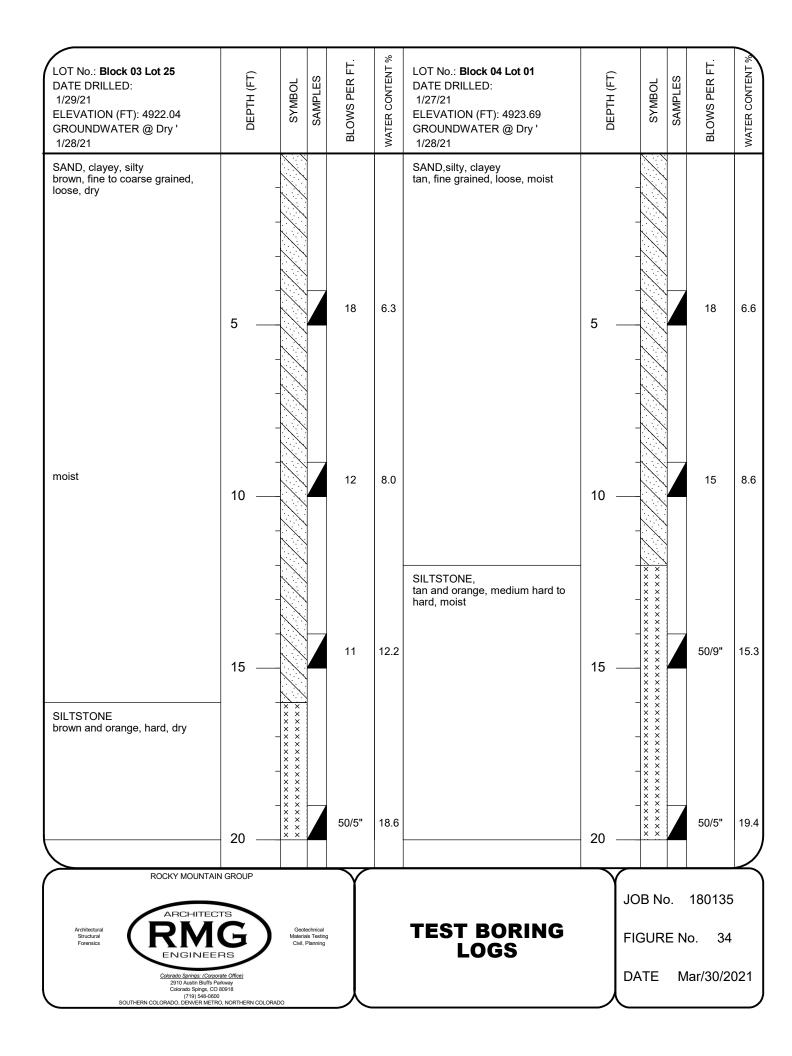


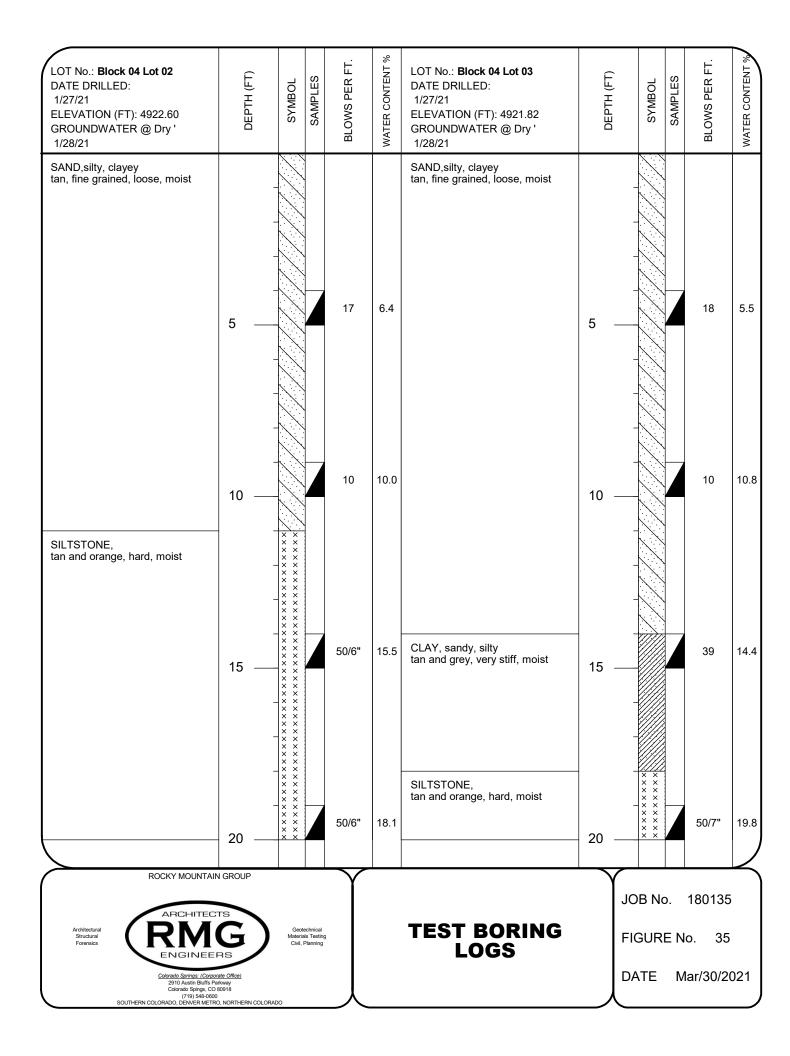


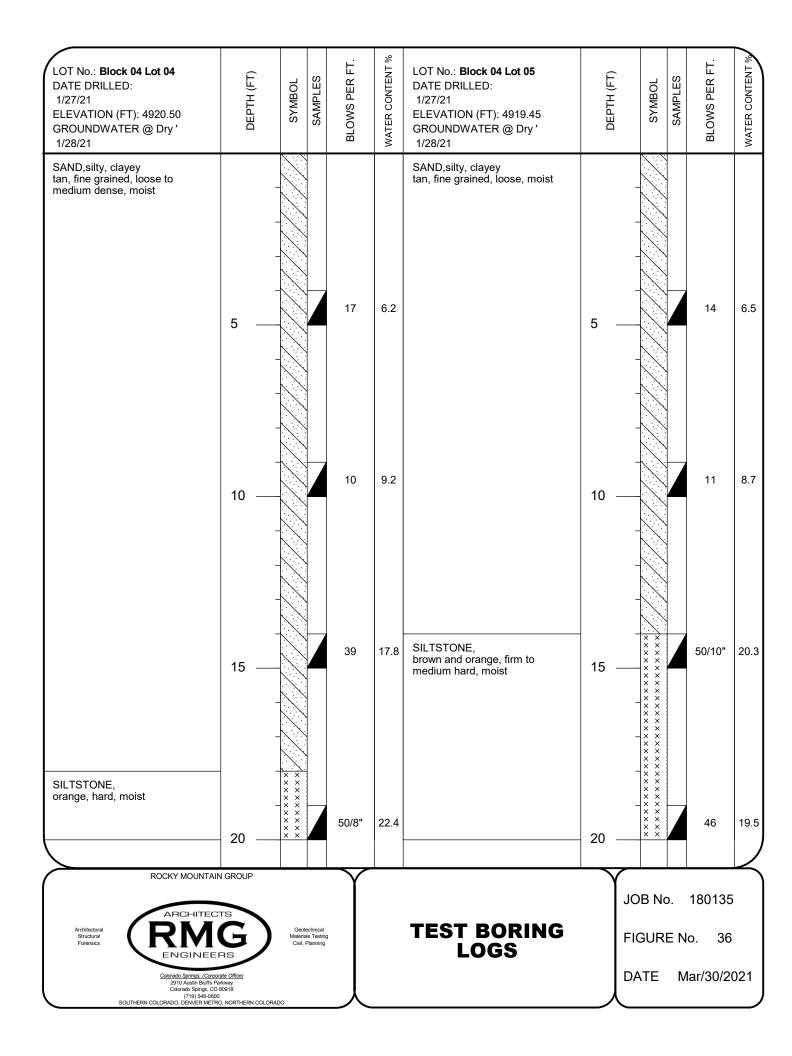


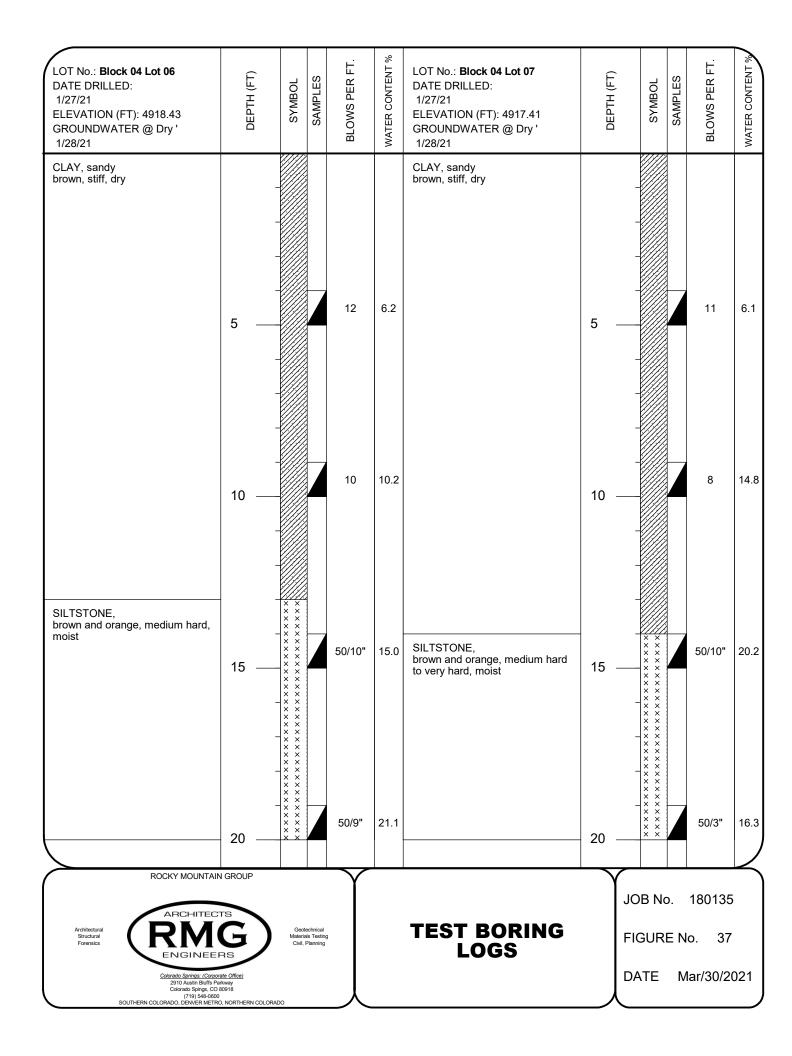


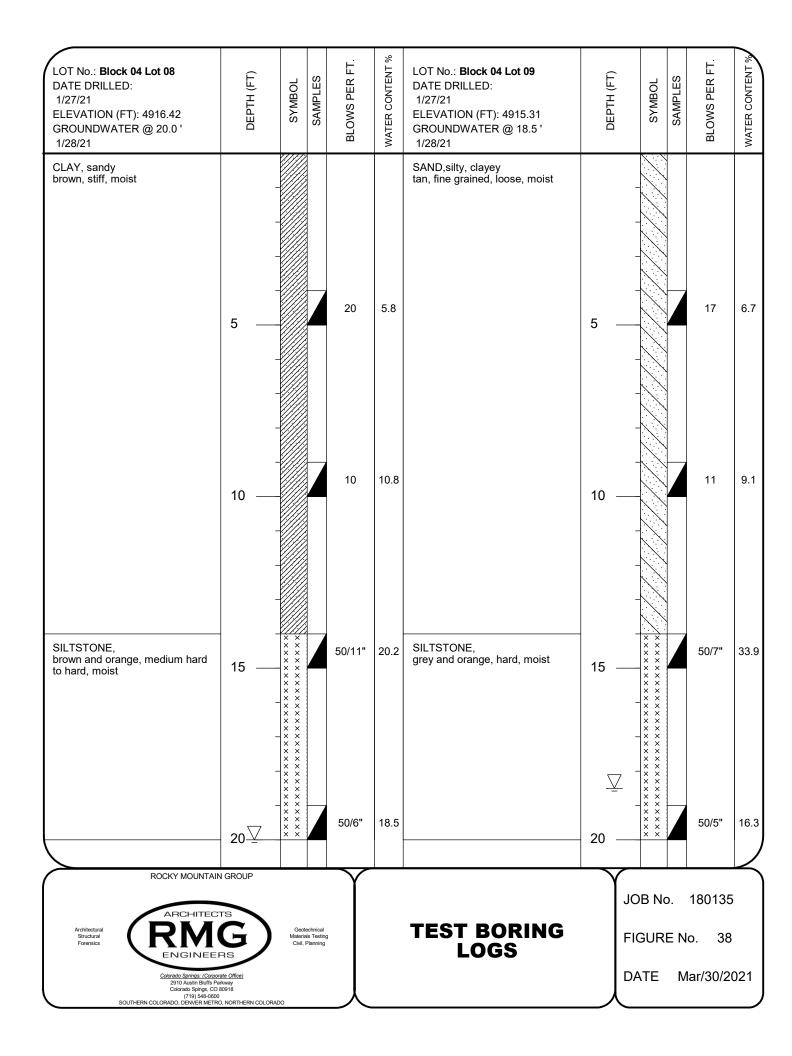


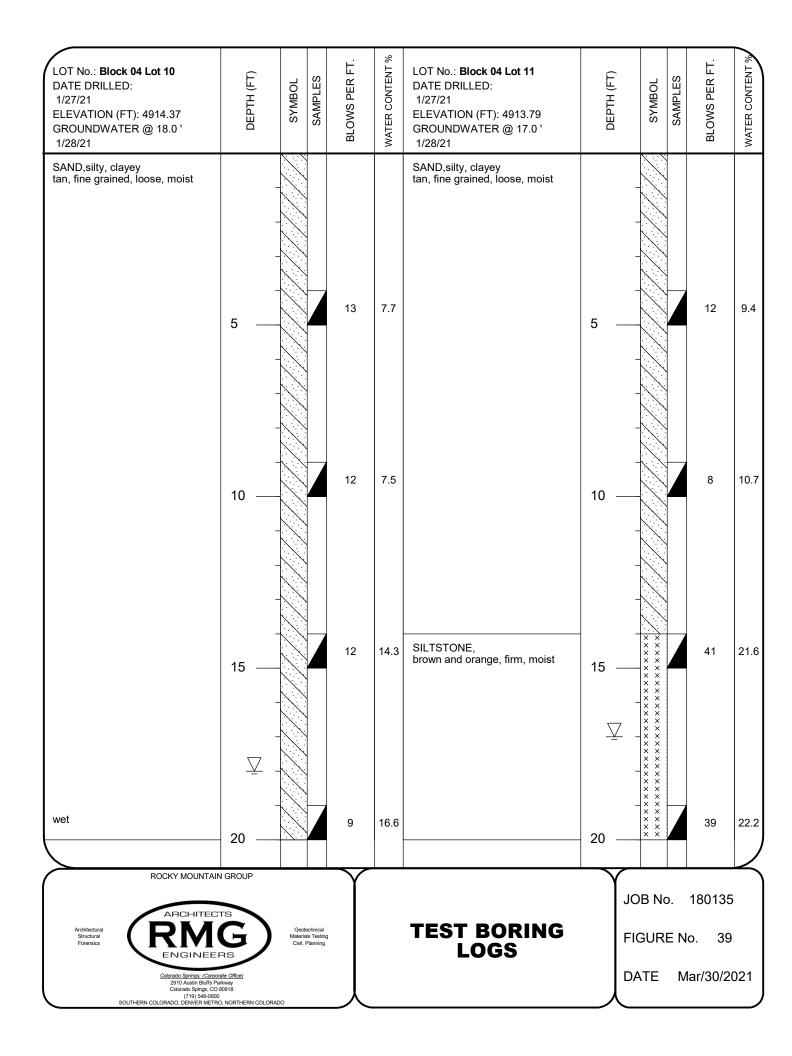


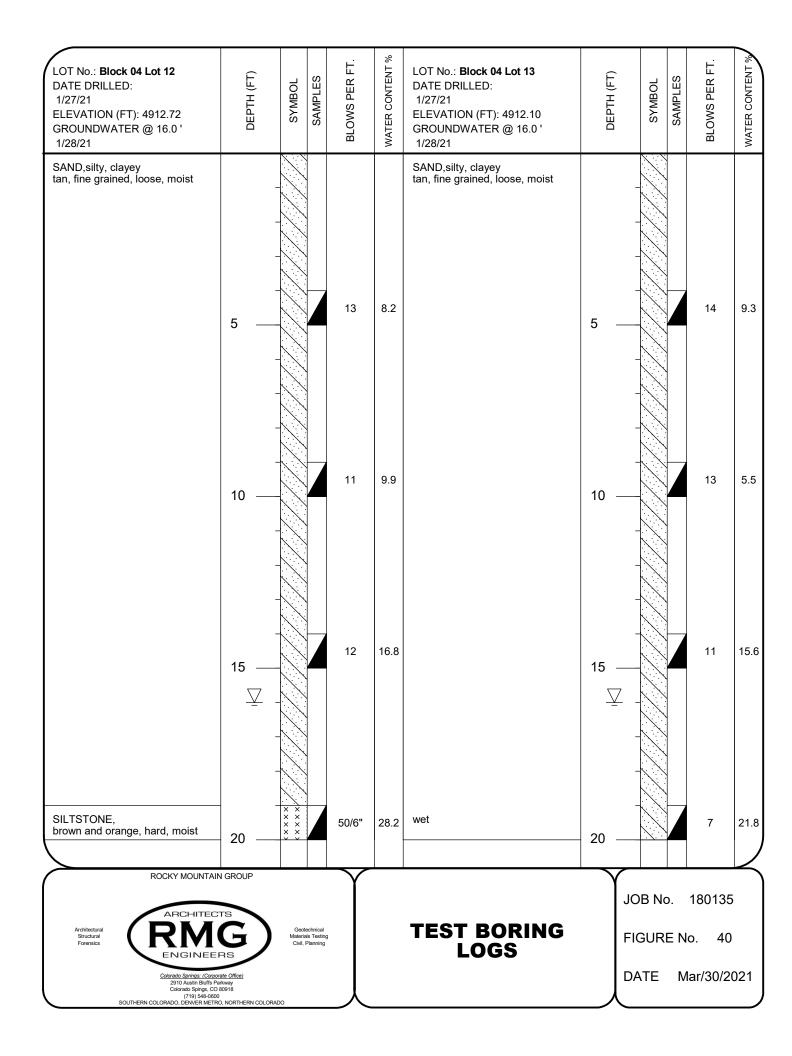


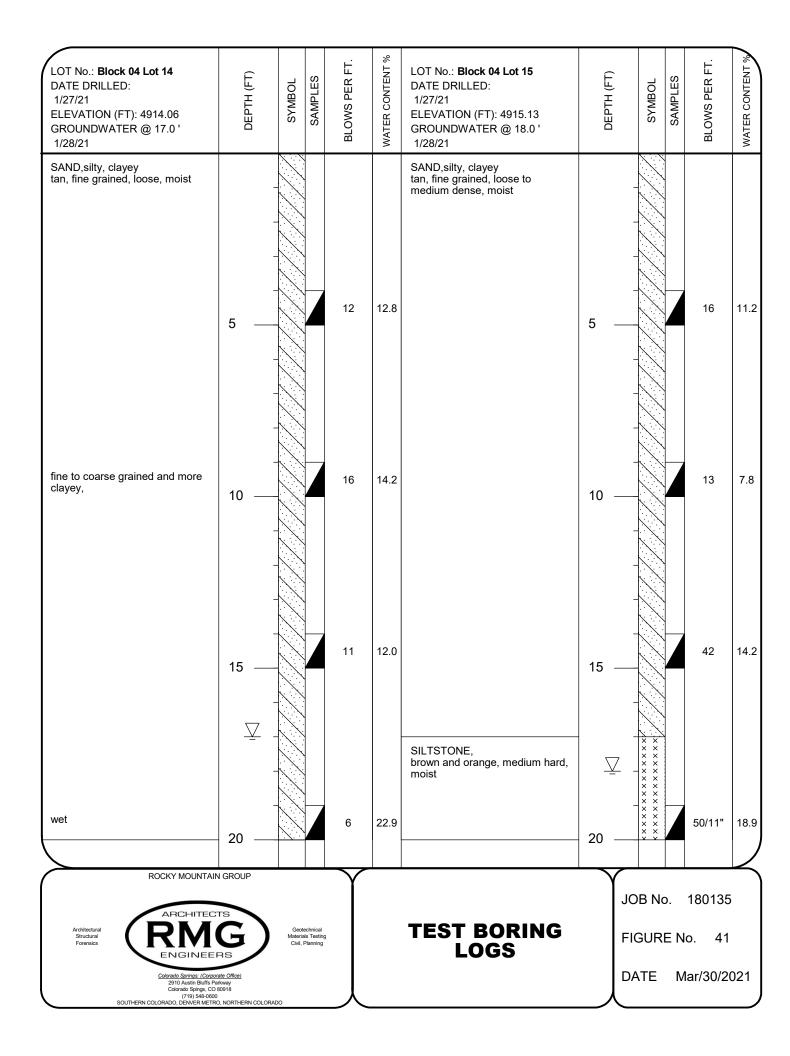


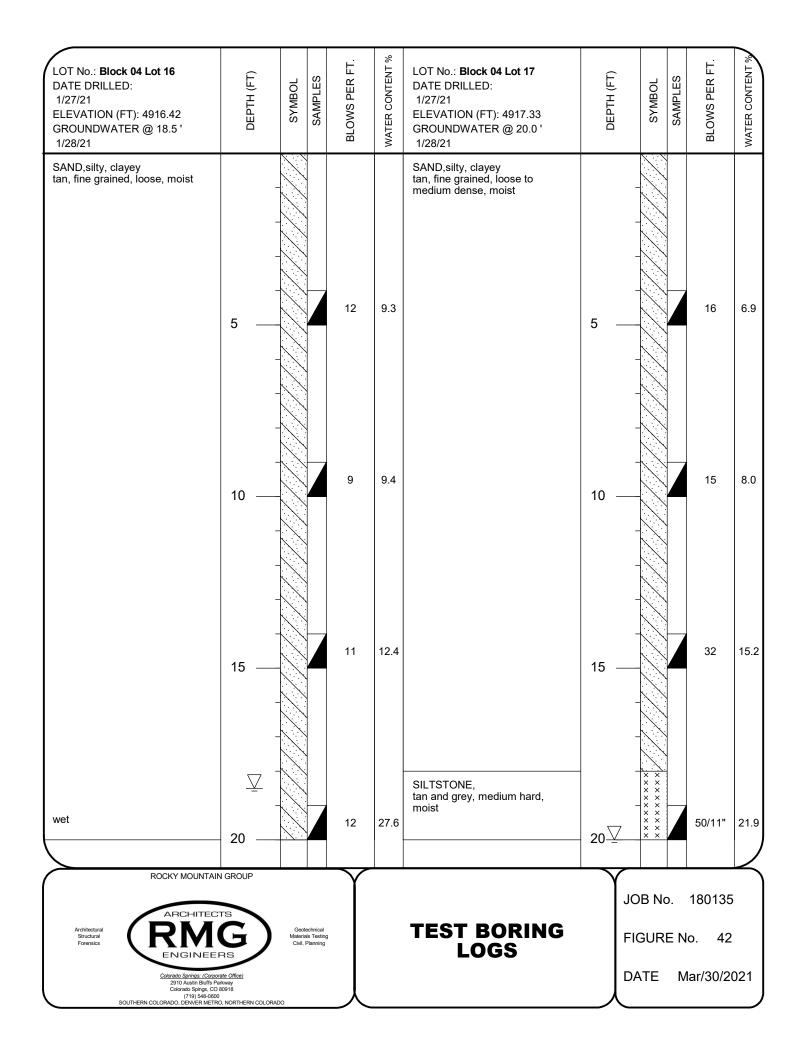


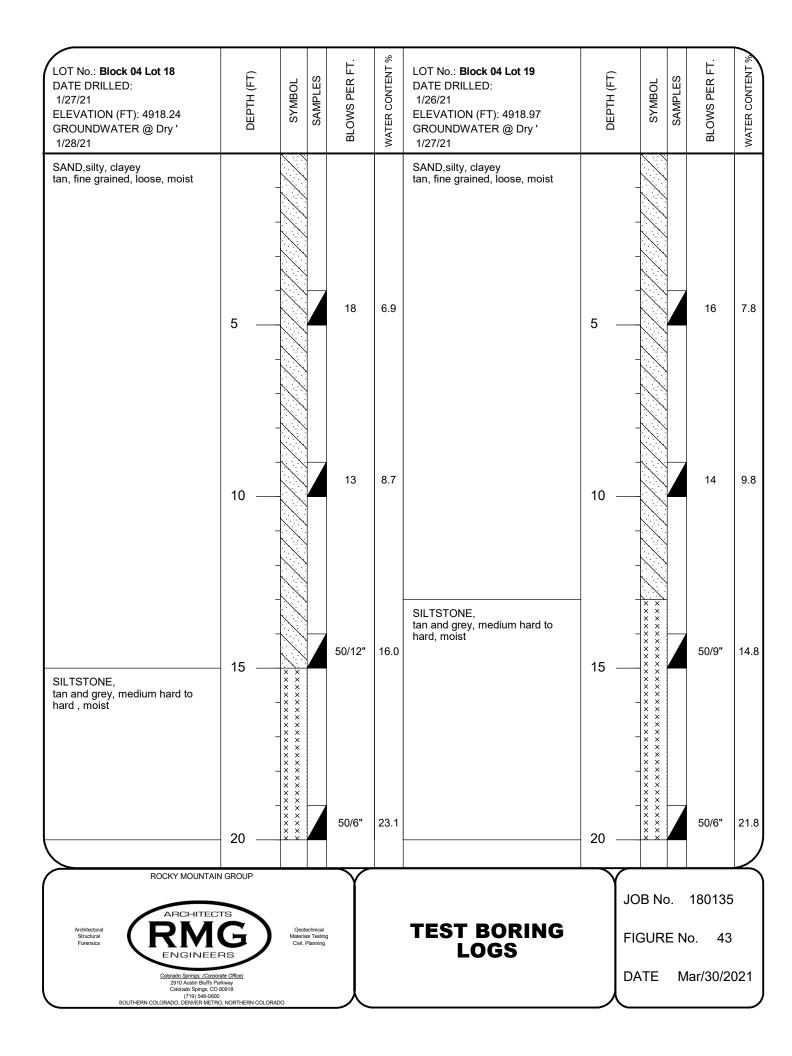


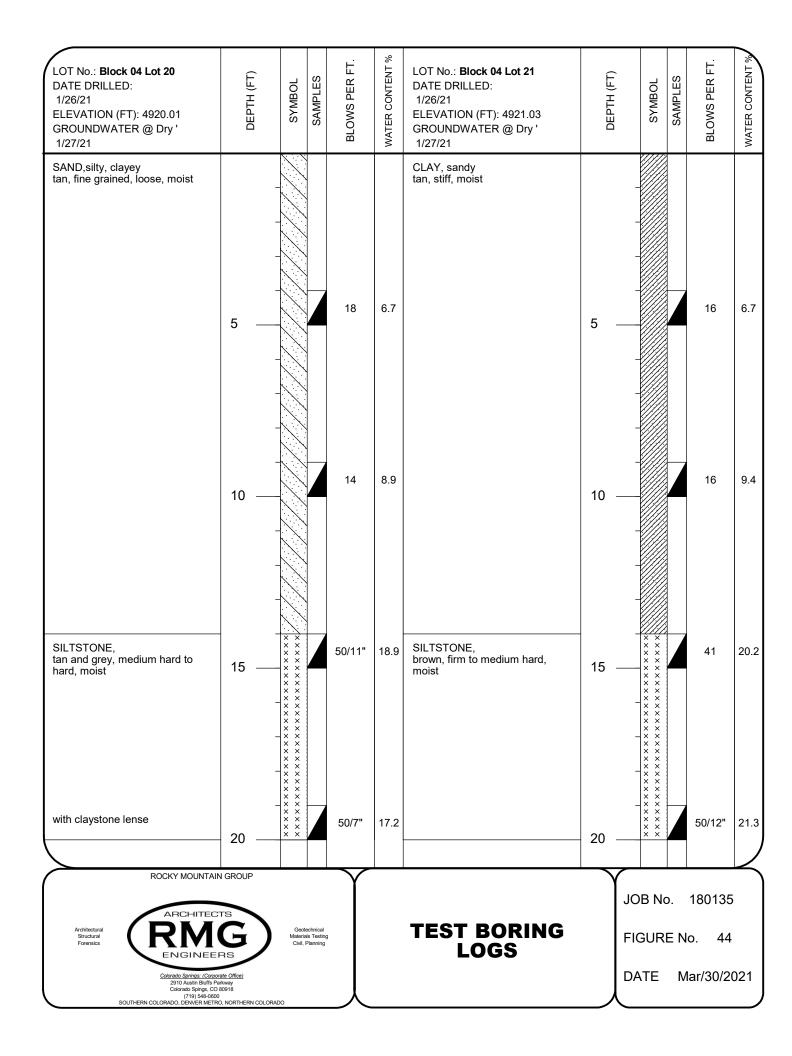


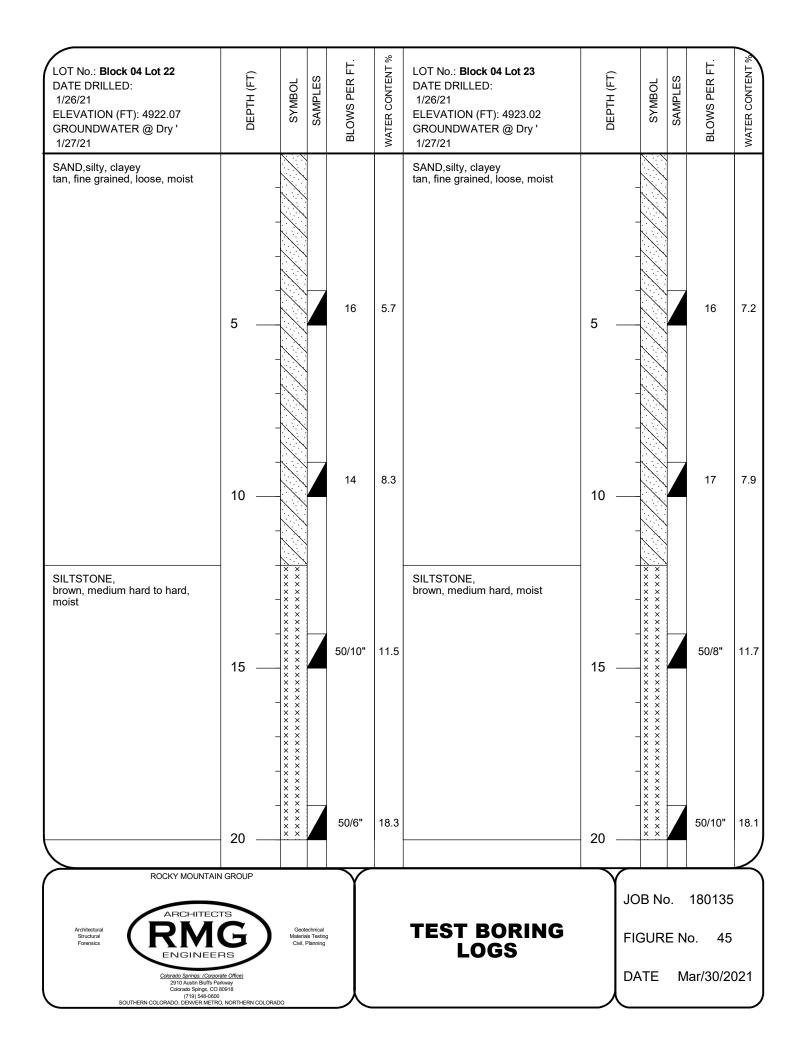


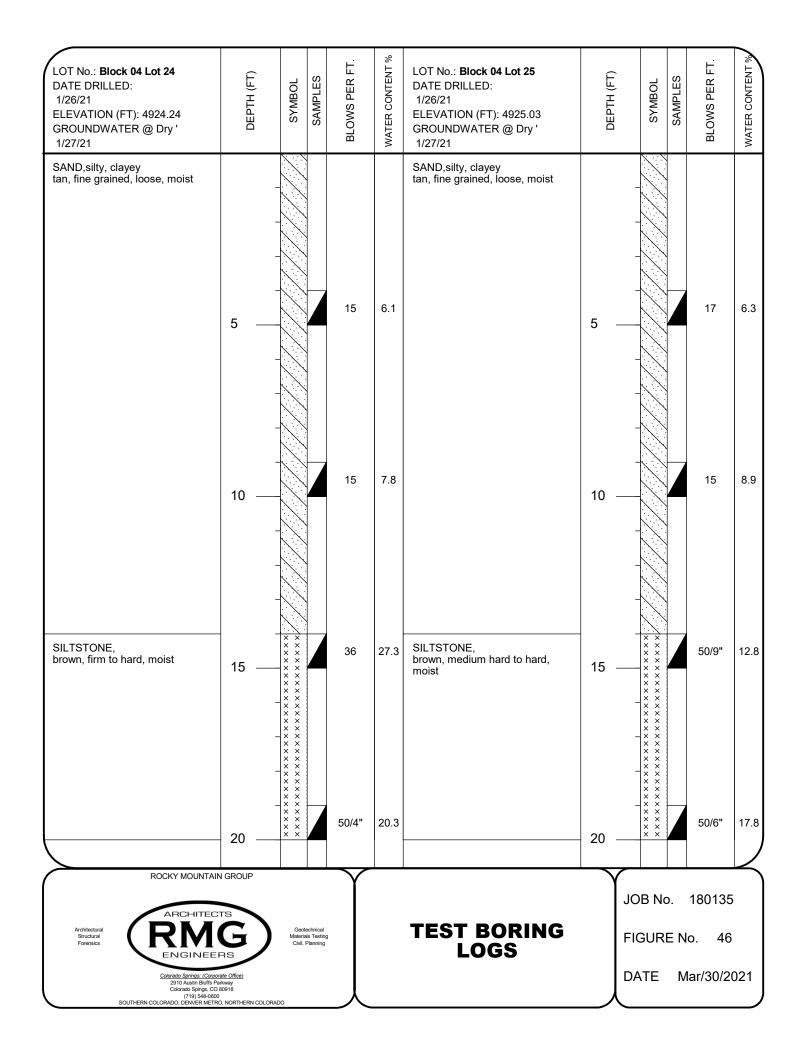


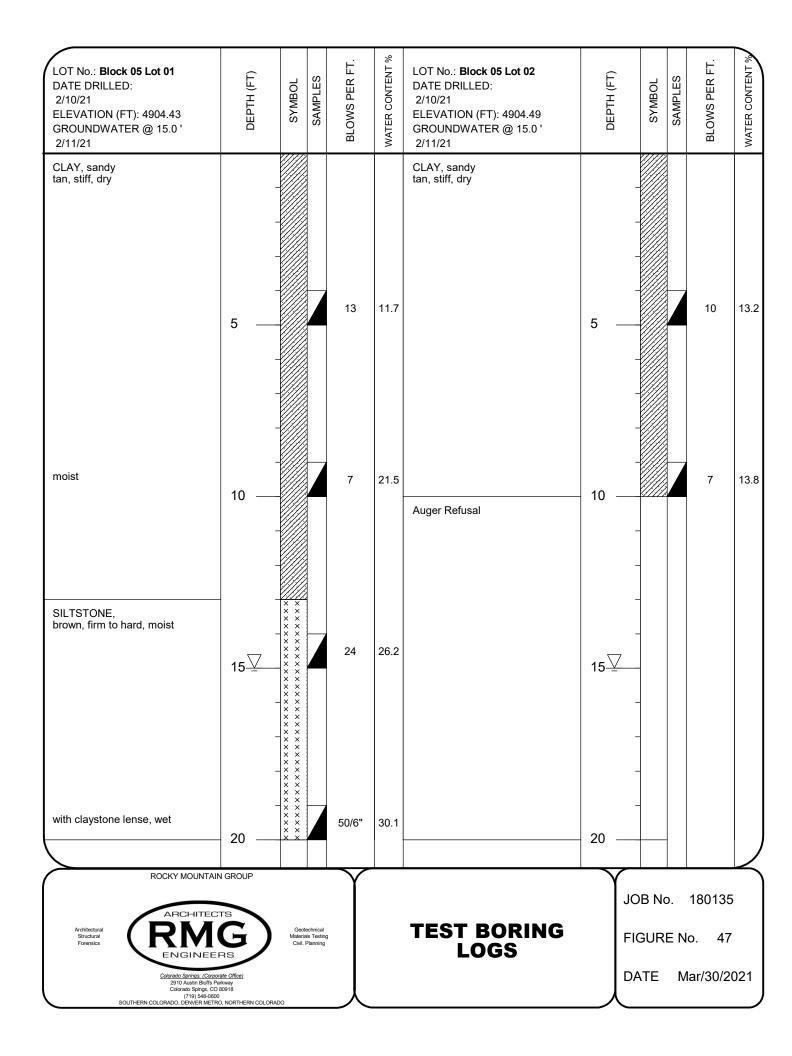


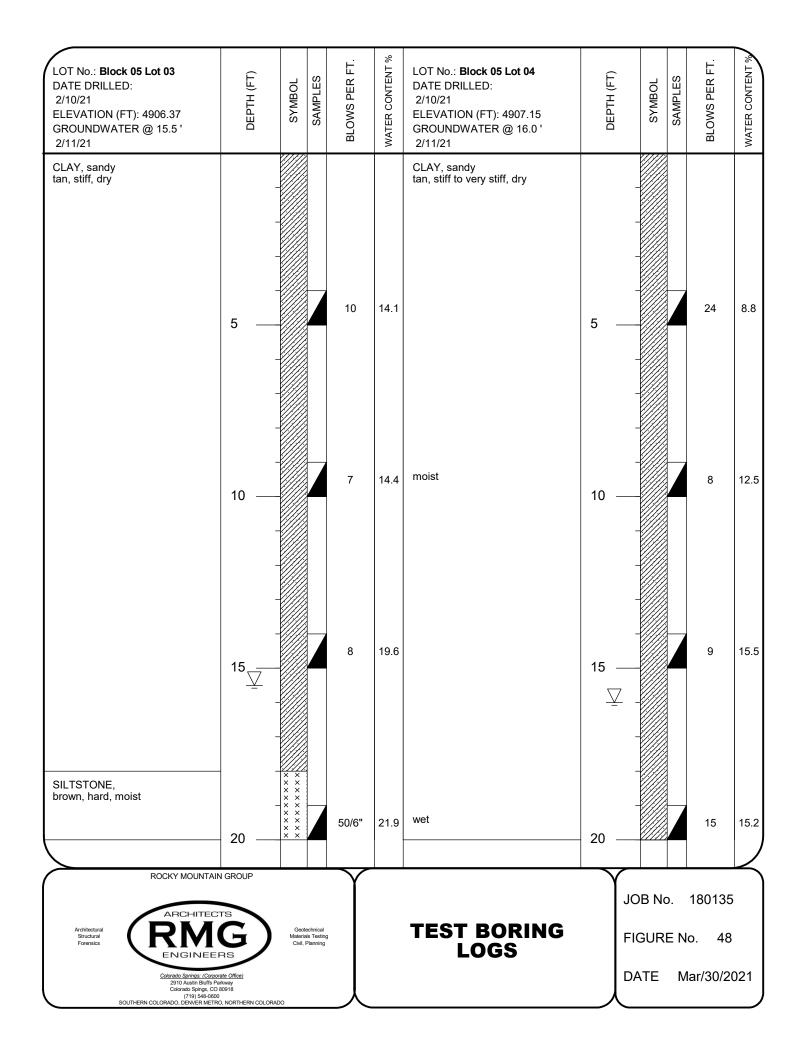


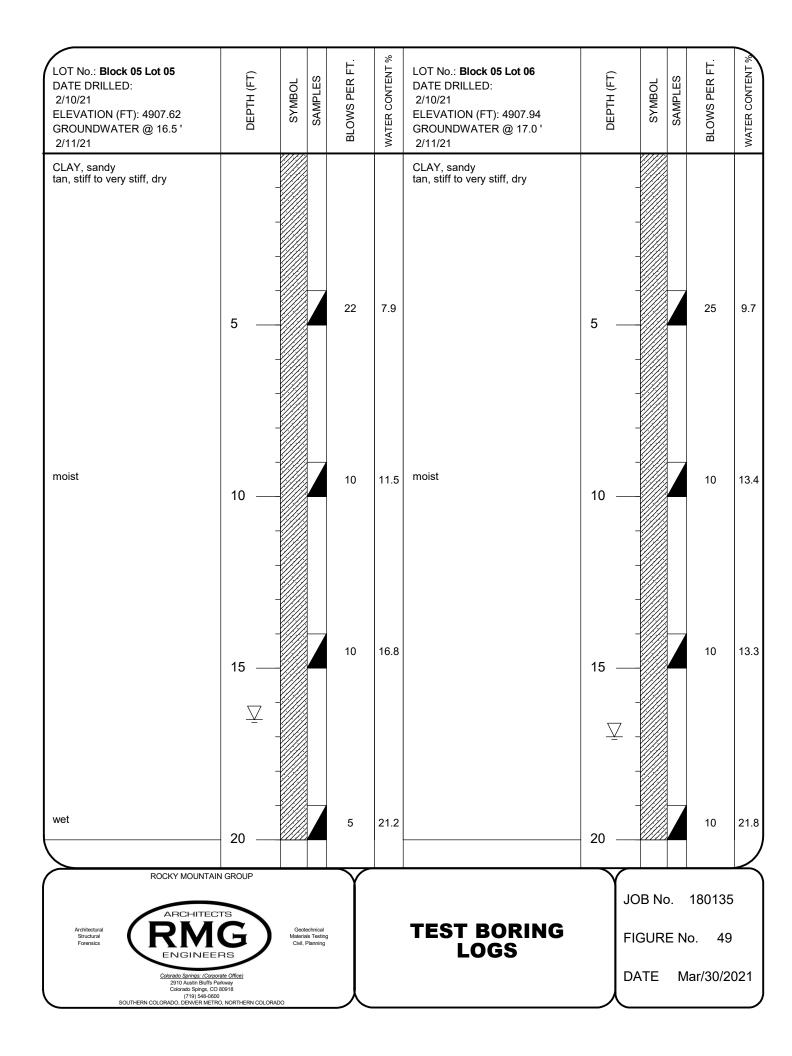


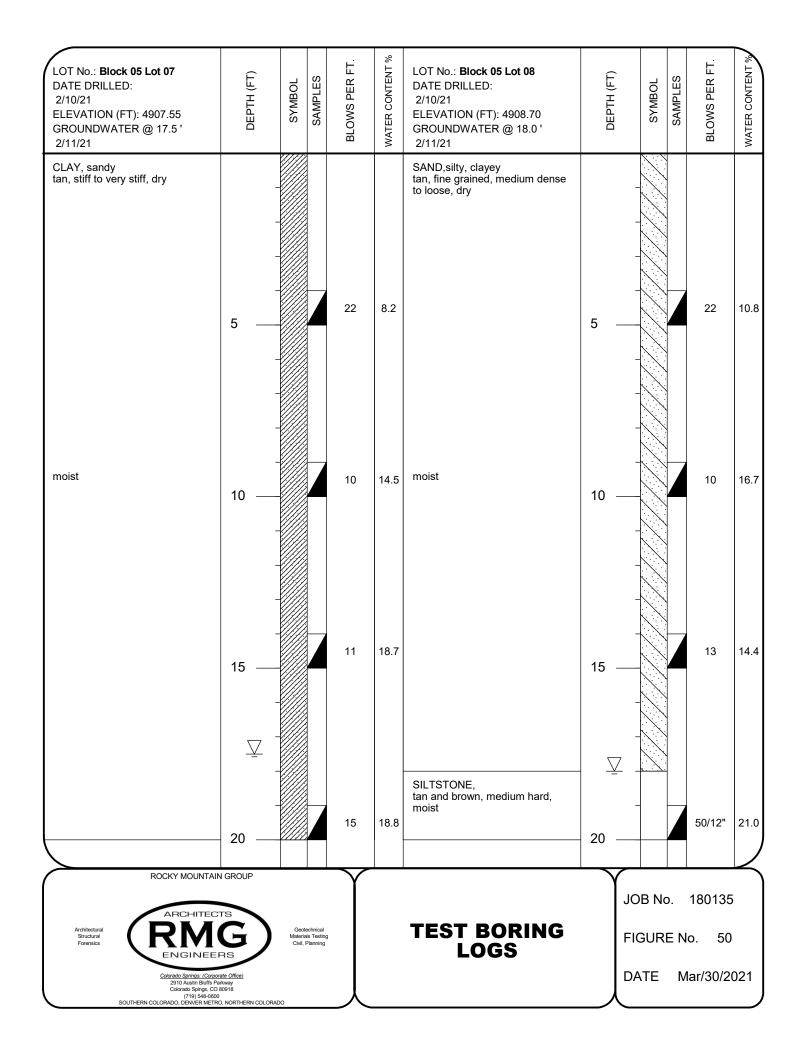


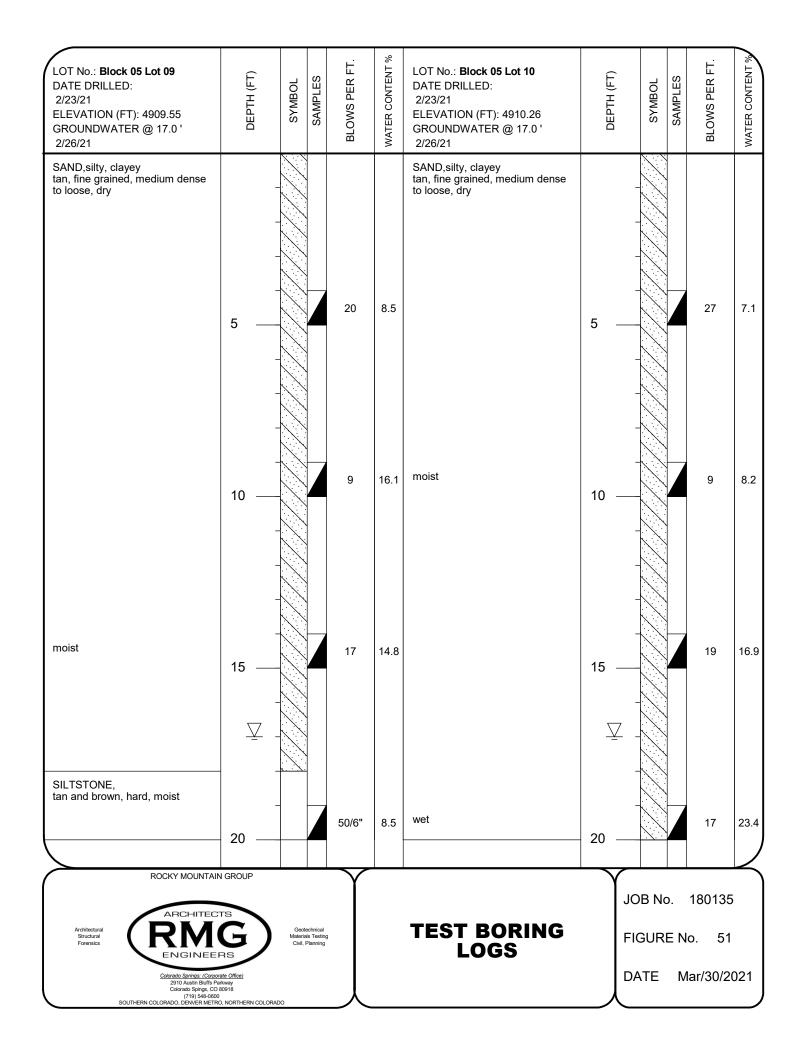


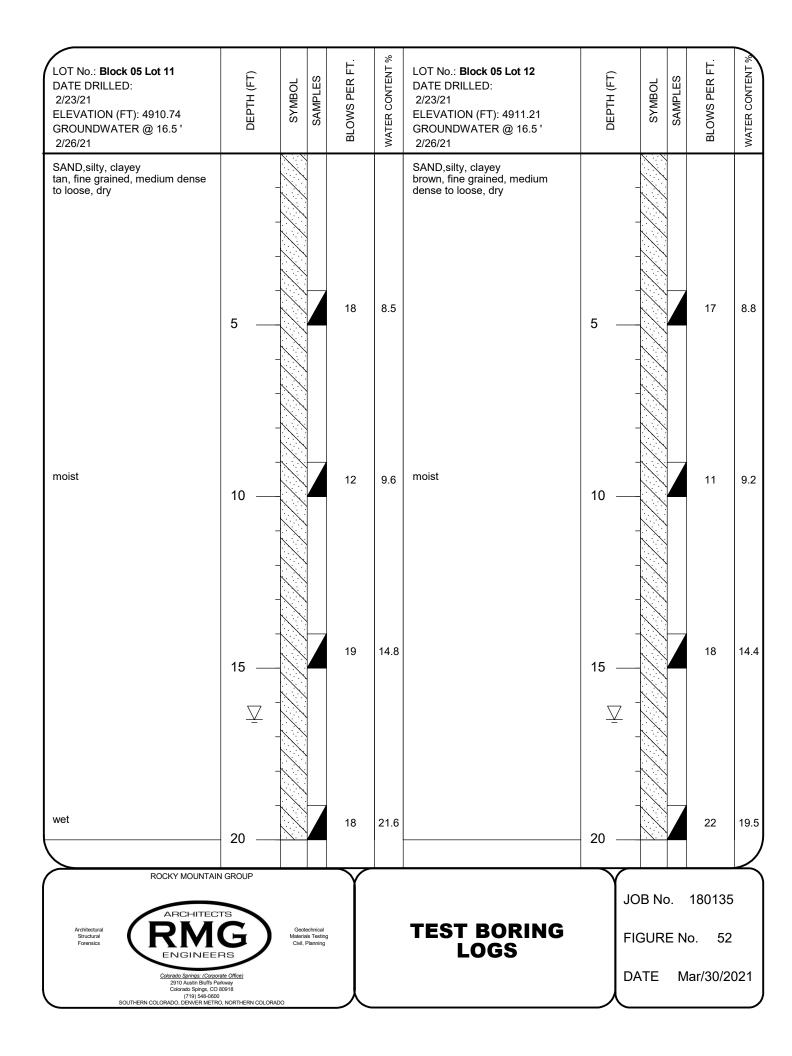


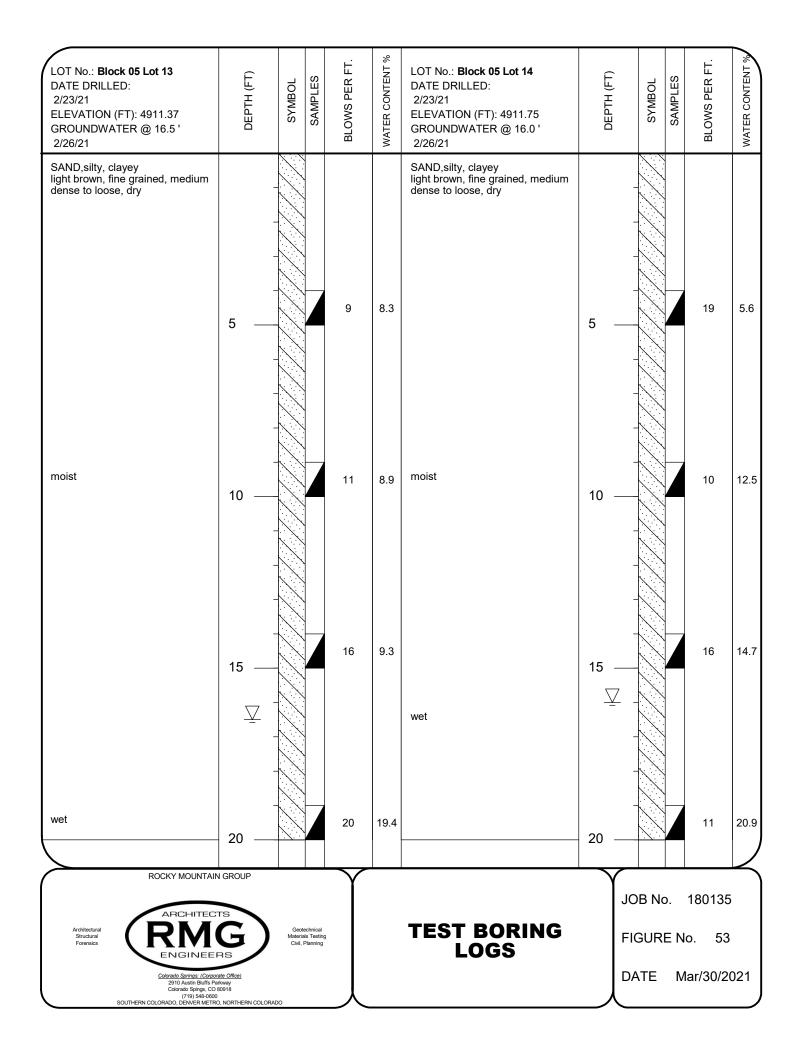


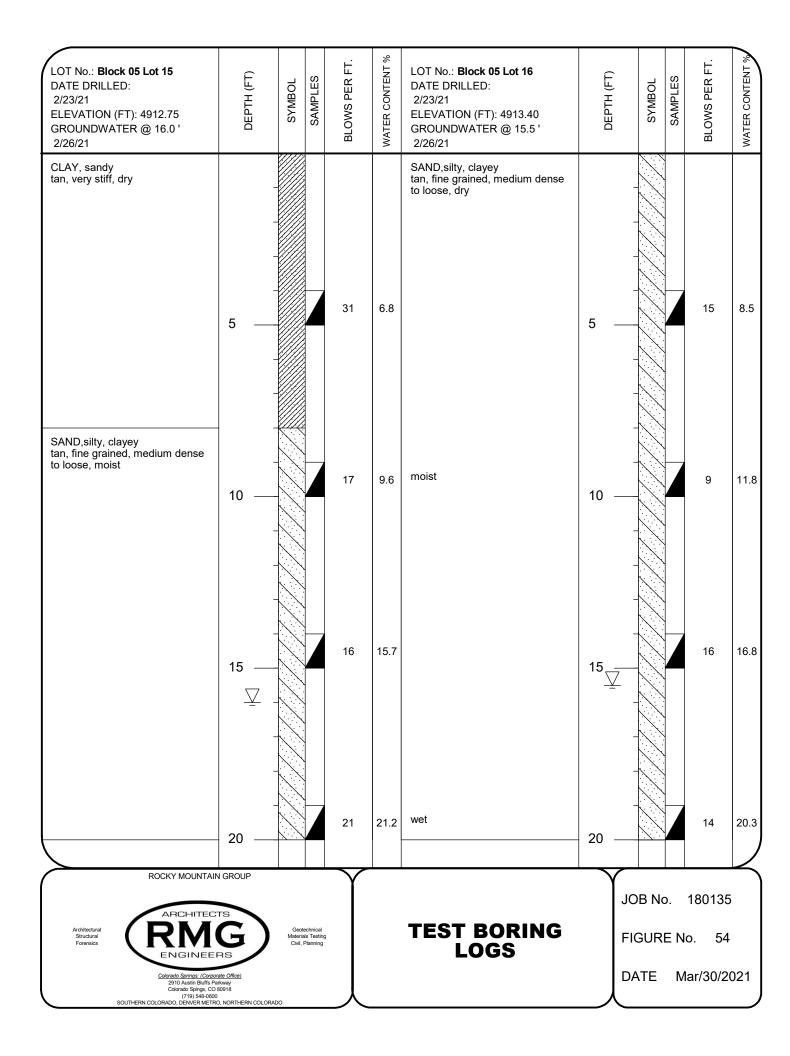


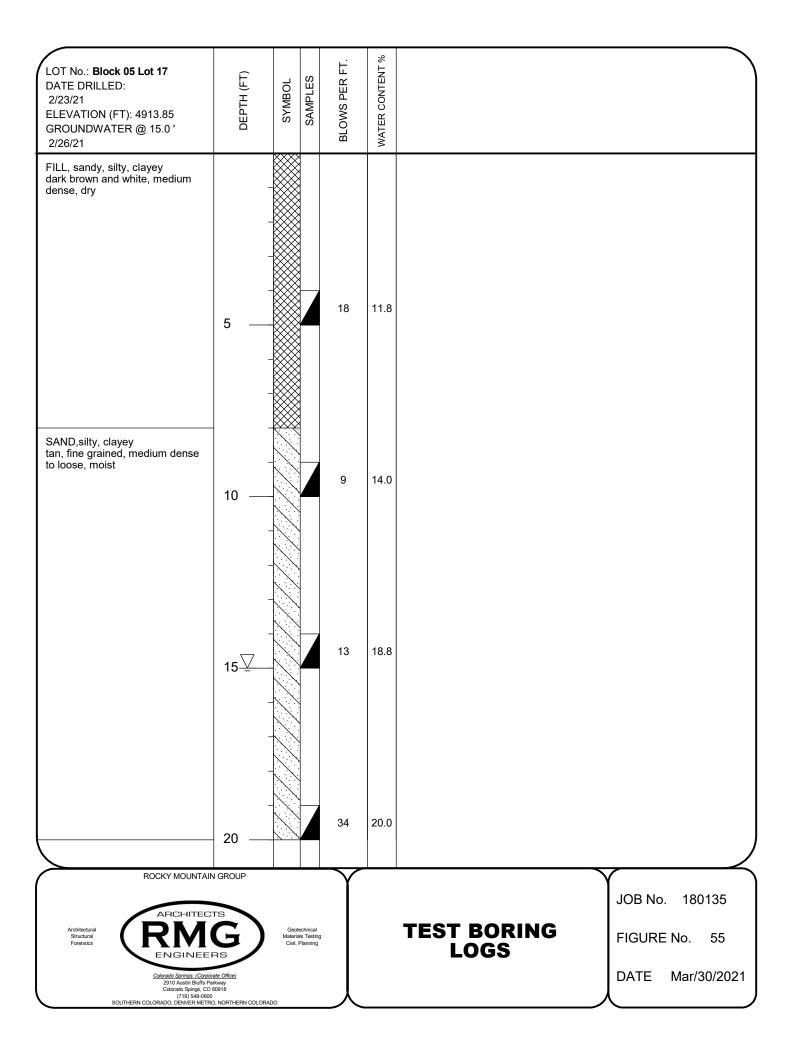












SOILS DESCRIPTION

CLAYEY SAND

FILL: SAND, SILTY TO CLAYEY

SANDY CLAY

SILTSTONE

SILTY SAND

UNLESS NOTED OTHERWISE, ALL LABORATORY TESTS PRESENTED HEREIN WERE PERFORMED BY: RMG - ROCKY MOUNTAIN GROUP 1601 37TH ST. EVANS, COLORADO

SYMBOLS AND NOTES

STANDARD PENETRATION TEST - MADE BY DRIVING A SPLIT-BARREL SAMPLER INTO THE SOIL BY DROPPING A 140 LB. HAMMER 30", IN GENERAL ACCORDANCE WITH ASTM D-1586. NUMBER INDICATES NUMBER OF HAMMER BLOWS PER FOOT (UNLESS OTHERWISE INDICATED).

UNDISTURBED CALIFORNIA SAMPLE - MADE BY DRIVING A RING-LINED SAMPLER INTO THE SOIL BY DROPPING A 140 LB. HAMMER 30", IN GENERAL ACCORDANCE WITH ASTM D-3550. NUMBER INDICATES NUMBER OF HAMMER BLOWS PER FOOT (UNLESS OTHERWISE INDICATED).

DEPTH AT WHICH BORING CAVED

BULK DISTURBED BULK SAMPLE

AUGER "CUTTINGS"

4.5 WATER CONTENT (%)

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EXPLANATION OF TEST BORING LOGS

JOB No. 180135

FIGURE No. 56

DATE Mar/30/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 01 Lot 01	4.0	7.5	89.3						
Block 01 Lot 01	9.0	8.5	90.8						
Block 01 Lot 01	14.0	9.3	98.0						
Block 01 Lot 01	19.0	22.3	90.2						
Block 01 Lot 02	4.0	7.0	95.6						
Block 01 Lot 02	9.0	7.9	89.9	26	9		47.3	- 5.9	1000
Block 01 Lot 02	14.0	11.0	90.9						
Block 01 Lot 02	19.0	21.0	100.2						
Block 01 Lot 03	4.0	6.3	89.3						
Block 01 Lot 03	9.0	9.0	92.8						
Block 01 Lot 03	14.0	11.6	100.5						
Block 01 Lot 03	19.0	19.6							
Block 01 Lot 04	4.0	6.1	98.6	28	12		35.9	- 2.6	1000
Block 01 Lot 04	9.0	13.4	97.5						
Block 01 Lot 04	14.0	7.3	103.8						
Block 01 Lot 04	19.0	25.4	91.4						
Block 01 Lot 05	4.0	6.6	93.3						
Block 01 Lot 05	9.0	10.8	84.7						
Block 01 Lot 05	14.0	7.3							
Block 01 Lot 05	19.0	22.6	102.3						
Block 01 Lot 06	4.0	11.1	102.3						
Block 01 Lot 06	9.0	17.8	100.3						
Block 01 Lot 06	14.0	11.8	104.9						
Block 01 Lot 06	19.0	22.4	103.5						
Block 01 Lot 07	4.0	7.1							
Block 01 Lot 07	9.0	47.4	102.8	29	13		70.6	- 0.8	1000
Block 01 Lot 07	14.0	11.5							
Block 01 Lot 07	19.0	22.1	103.3						
Block 01 Lot 08	4.0	10.1	80.8						
Block 01 Lot 08	9.0	8.8	86.7						
Block 01 Lot 08	14.0	10.9	108.9						
Block 01 Lot 08	19.0	22.5	97.9						
Block 01 Lot 09	4.0	6.9	96.4						
Block 01 Lot 09	9.0	13.8	105.6						

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SUMMARY OF LABORATORY TEST RESULTS

JOB No. 180135 FIGURE No. 57 PAGE 1 OF 13 DATE Mar/30/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 01 Lot 09	14.0	10.3	97.1						
Block 01 Lot 09	19.0	16.8	93.7						
Block 01 Lot 10	4.0	6.2							
Block 01 Lot 10	9.0	7.8	99.3						
Block 01 Lot 10	14.0	8.4	95.4						
Block 01 Lot 10	19.0	23.5	95.2						
Block 01 Lot 11	4.0	6.9	87.7						
Block 01 Lot 11	9.0	10.1	78.8						
Block 01 Lot 11	14.0	10.0	93.3						
Block 01 Lot 11	19.0	23.3	85.7						
Block 01 Lot 12	4.0	5.3	94.9	25	9		27.3	- 6.6	1000
Block 01 Lot 12	9.0	8.5	89.1						
Block 01 Lot 12	14.0	13.5	91.3						
Block 01 Lot 12	19.0	23.5	93.5						
Block 01 Lot 13	4.0	7.2	95.3						
Block 01 Lot 13	9.0	10.2	93.4						
Block 01 Lot 13	14.0	21.6	94.7						
Block 01 Lot 13	19.0	20.3	83.4						
Block 01 Lot 14	4.0	6.3	89.2						
Block 01 Lot 14	9.0	12.1	103.6						
Block 01 Lot 14	14.0	16.1	104.8						
Block 01 Lot 14	19.0	20.7	94.4						
Block 01 Lot 15	4.0	7.4	90.2						
Block 01 Lot 15	9.0	9.2	96.7	26	14		50.0	- 3.5	1000
Block 01 Lot 15	14.0	20.8	88.7						
Block 01 Lot 15	19.0	23.1	84.3						
Block 01 Lot 16	4.0	7.1	101.0						
Block 01 Lot 16	9.0	7.4	91.0						
Block 01 Lot 16	14.0	13.7	89.5						
Block 01 Lot 16	19.0	26.3							
Block 01 Lot 17	4.0	7.9	90.4						
Block 01 Lot 17	9.0	7.9	90.3						
Block 01 Lot 17	14.0	20.5	96.9						
Block 01 Lot 17	19.0	19.6	82.6						

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SUMMARY OF LABORATORY TEST RESULTS

JOB No. 180135 FIGURE No. 57 PAGE 2 OF 13 DATE Mar/30/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 01 Lot 18	4.0	6.2	95.2						
Block 01 Lot 18	9.0	6.6	94.2						
Block 01 Lot 18	14.0	12.8	80.0	NP	NP		59.6		1000
Block 01 Lot 18	19.0	26.5	96.6						
Block 01 Lot 19	4.0	7.5	92.0						
Block 01 Lot 19	9.0	7.9	98.3						
Block 01 Lot 19	14.0	15.7	86.1						
Block 01 Lot 19	19.0	16.1	91.1						
Block 01 Lot 20	4.0	7.0	97.7						
Block 01 Lot 20	9.0	7.9	90.3						
Block 01 Lot 20	14.0	12.6	89.8						
Block 01 Lot 20	19.0	19.1	88.8						
Block 01 Lot 21	4.0	9.0	90.9						
Block 01 Lot 21	9.0	8.5	86.8						
Block 01 Lot 21	14.0	17.0	78.4						
Block 01 Lot 21	19.0	2.7							
Block 01 Lot 22	4.0	7.0	91.9	26	9		52.1	- 5.0	1000
Block 01 Lot 22	9.0	9.6	93.1						
Block 01 Lot 22	14.0	11.8							
Block 01 Lot 22	19.0	25.8	82.0						
Block 01 Lot 23	4.0	7.8	97.7						
Block 01 Lot 23	9.0	9.1	95.3						
Block 01 Lot 23	14.0	16.3	92.0						
Block 01 Lot 23	19.0	20.5	78.5						
Block 01 Lot 24	4.0	8.1							
Block 01 Lot 24	9.0	6.6	109.2						
Block 01 Lot 24	14.0	10.6	110.4						
Block 01 Lot 24	19.0	21.7	82.0						
Block 01 Lot 25	4.0	9.1	88.0						
Block 01 Lot 25	9.0	5.7	99.7						
Block 01 Lot 25	14.0	8.8	102.4						
Block 01 Lot 25	19.0	24.9	95.5						
Block 01 Lot 26	4.0	9.5	86.8						
Block 01 Lot 26	9.0	9.6	97.3	24	5		42.5	- 3.2	1000

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SUMMARY OF LABORATORY TEST RESULTS

JOB No. 180135 FIGURE No. 57 PAGE 3 OF 13 DATE Mar/30/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 01 Lot 26	14.0	11.9	80.0						
Block 01 Lot 26	19.0	23.9	97.3						
Block 01 Lot 27	4.0	7.2	100.0						
Block 01 Lot 27	9.0	5.7	100.8						
Block 01 Lot 27	14.0	19.9	102.5						
Block 01 Lot 27	19.0	28.3							
Block 02 Lot 01	4.0	8.1	93.0						
Block 02 Lot 01	9.0	12.3	93.3						
Block 02 Lot 01	14.0	9.5	86.3						
Block 02 Lot 01	19.0	16.7	94.0						
Block 02 Lot 02	4.0	8.7	93.6	28	11		52.4	- 4.1	1000
Block 02 Lot 02	9.0	6.0	111.7						
Block 02 Lot 02	14.0	10.1							
Block 02 Lot 02	19.0	15.3	88.3						
Block 02 Lot 03	4.0	7.9	87.4						
Block 02 Lot 03	9.0	7.9	90.0						
Block 02 Lot 03	14.0	13.0	88.2						
Block 02 Lot 03	19.0	18.3	90.3						
Block 02 Lot 04	4.0	8.5	85.5						
Block 02 Lot 04	9.0	9.9	90.0						
Block 02 Lot 04	14.0	12.4	91.6						
Block 02 Lot 04	19.0	17.8							
Block 02 Lot 05	4.0	14.0	73.4						
Block 02 Lot 05	9.0	7.7	78.2	26	6		69.1	- 1.9	1000
Block 02 Lot 05	14.0	12.0	87.8						
Block 02 Lot 05	19.0	20.6							
Block 02 Lot 06	4.0	10.6	84.4						
Block 02 Lot 06	14.0	16.5	78.0						
Block 02 Lot 06	19.0	21.7	86.4						
Block 02 Lot 07	4.0	10.7	77.0						
Block 02 Lot 07	9.0	8.5	105.9						
Block 02 Lot 07	14.0	22.0							
Block 02 Lot 08	4.0	9.1	86.5	NP	NP	15.3	29.6	- 2.0	1000
Block 02 Lot 08	9.0	11.0	89.5						

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SUMMARY OF LABORATORY TEST RESULTS

JOB No. 180135 FIGURE No. 57 PAGE 4 OF 13 DATE Mar/30/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 02 Lot 08	14.0	21.8	73.7						
Block 02 Lot 08	19.0	28.6	78.7						
Block 02 Lot 09	4.0	8.3	90.3						
Block 02 Lot 09	9.0	15.8	95.1						
Block 02 Lot 09	14.0	19.5							
Block 02 Lot 09	19.0	24.3							
Block 02 Lot 10	4.0	5.2	93.0						
Block 02 Lot 10	9.0	22.5	82.8						
Block 02 Lot 10	14.0	19.6	76.9						
Block 02 Lot 10	19.0	20.7	92.1						
Block 02 Lot 11	4.0	12.0	90.3						
Block 02 Lot 11	9.0	14.8	94.8	26	7		57.8	- 0.2	1000
Block 02 Lot 11	14.0	11.9							
Block 02 Lot 11	19.0	16.5	102.3						
Block 03 Lot 01	4.0	11.7	92.6	27	9		42.5		
Block 03 Lot 01	9.0	11.5	94.3						
Block 03 Lot 01	14.0	10.4	95.6						
Block 03 Lot 01	19.0	18.6	94.9						
Block 03 Lot 02	4.0	10.6	86.6						
Block 03 Lot 02	9.0	11.7	116.4						
Block 03 Lot 02	14.0	11.1							
Block 03 Lot 02	19.0	26.5	97.6						
Block 03 Lot 03	4.0	8.0	93.5						
Block 03 Lot 03	9.0	8.8	100.2						
Block 03 Lot 03	14.0	20.1	89.3						
Block 03 Lot 03	19.0	17.7	81.9						
Block 03 Lot 04	4.0	7.1	102.1						
Block 03 Lot 04	9.0	4.4	92.2	NP	NP	0.0	40.1	- 1.3	1000
Block 03 Lot 04	14.0	14.0	91.8						
Block 03 Lot 04	19.0	18.6	88.7						
Block 03 Lot 05	4.0	8.3	94.9						
Block 03 Lot 05	9.0	5.8	100.7						
Block 03 Lot 05	14.0	22.4	93.0						
Block 03 Lot 05	19.0	22.0	88.7						

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ng g SUMMARY OF LABORATORY TEST RESULTS JOB No. 180135 FIGURE No. 57 PAGE 5 OF 13 DATE Mar/30/2021

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Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 03 Lot 06	4.0	7.8	93.5						
Block 03 Lot 06	9.0	8.2	93.7	NP	NP		26.3	- 0.9	1000
Block 03 Lot 06	14.0	15.4	83.7						
Block 03 Lot 06	19.0	18.4	79.5						
Block 03 Lot 07	4.0	9.2	91.6						
Block 03 Lot 07	9.0	8.7	92.4						
Block 03 Lot 07	14.0	23.4	91.6						
Block 03 Lot 07	19.0	19.7	90.5						
Block 03 Lot 08	4.0	8.5	94.8						
Block 03 Lot 08	9.0	5.1	100.4						
Block 03 Lot 08	14.0	20.8	95.2						
Block 03 Lot 08	19.0	23.6	90.5						
Block 03 Lot 09	4.0	7.8	93.6						
Block 03 Lot 09	9.0	9.8	104.5						
Block 03 Lot 09	14.0	14.1	69.3						
Block 03 Lot 09	19.0	16.7	100.4						
Block 03 Lot 10	4.0	9.6	81.9	32	19	0.0	62.5	- 8.8	1000
Block 03 Lot 10	9.0	10.4	93.6						
Block 03 Lot 10	14.0	21.4	87.9						
Block 03 Lot 10	19.0	20.4							
Block 03 Lot 11	4.0	10.1	96.6						
Block 03 Lot 11	9.0	11.6	101.1						
Block 03 Lot 11	14.0	9.7							
Block 03 Lot 11	19.0	22.5	94.3						
Block 03 Lot 12	4.0	9.8	90.0						
Block 03 Lot 12	9.0	12.3	96.6	24	11	0.9	41.1	- 1.9	1000
Block 03 Lot 12	14.0	24.4							
Block 03 Lot 12	19.0	20.3	96.9						
Block 03 Lot 13	4.0	8.1	100.2						
Block 03 Lot 13	9.0	10.7							
Block 03 Lot 13	14.0	16.5	99.4						
Block 03 Lot 13	19.0	23.7	100.4						
Block 03 Lot 14	4.0	6.1	95.4						
Block 03 Lot 14	9.0	9.1	88.2						

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Geotechnical Materials Testing

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SUMMARY OF LABORATORY TEST RESULTS JOB No. 180135 FIGURE No. 57 PAGE 6 OF 13 DATE Mar/30/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 03 Lot 14	14.0	11.5	100.7						
Block 03 Lot 14	19.0	23.1	92.8						
Block 03 Lot 15	4.0	6.9	82.9						
Block 03 Lot 15	9.0	10.3	89.2						
Block 03 Lot 15	14.0	9.9	94.5						
Block 03 Lot 15	19.0	20.8							
Block 03 Lot 16	4.0	7.9	88.3						
Block 03 Lot 16	9.0	9.3	95.9						
Block 03 Lot 16	14.0	6.2	104.3						
Block 03 Lot 16	19.0	20.7							
Block 03 Lot 17	4.0	9.7	96.1	31	17		62.7	- 1.8	1000
Block 03 Lot 17	9.0	6.2	87.4						
Block 03 Lot 17	14.0	13.0	94.1						
Block 03 Lot 17	19.0	19.4	96.2						
Block 03 Lot 18	4.0	7.9	88.3						
Block 03 Lot 18	9.0	9.3	95.9						
Block 03 Lot 18	14.0	6.2	104.3						
Block 03 Lot 18	19.0	20.7							
Block 03 Lot 19	4.0	7.6	93.6						
Block 03 Lot 19	9.0	8.3	96.4						
Block 03 Lot 19	14.0	10.9	89.1					- 1.1	1000
Block 03 Lot 19	19.0	17.9	79.7						
Block 03 Lot 20	4.0	6.8	93.8						
Block 03 Lot 20	9.0	9.4	98.8						
Block 03 Lot 20	14.0	13.3	99.0						
Block 03 Lot 20	19.0	23.2	88.6						
Block 03 Lot 21	4.0	6.3	94.4						
Block 03 Lot 21	9.0	7.6							
Block 03 Lot 21	14.0	13.3	95.1						
Block 03 Lot 21	19.0	18.0	95.1						
Block 03 Lot 22	4.0	7.4							
Block 03 Lot 22	9.0	6.1	97.5						
Block 03 Lot 22	14.0	7.9	87.8						
Block 03 Lot 22	19.0	15.8							

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Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 180135 FIGURE No. 57 PAGE 7 OF 13 DATE Mar/30/2021

Colorado Sarings: (Corporate Office)
2910 Austin Bluffs Partway
Colorado Spings, CO 80916
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 03 Lot 23	4.0	8.8	88.4						
Block 03 Lot 23	9.0	5.7	99.1						
Block 03 Lot 23	14.0	10.3	90.9						
Block 03 Lot 23	19.0	13.0							
Block 03 Lot 24	4.0	6.7	92.2						
Block 03 Lot 24	9.0	7.6	95.4						
Block 03 Lot 24	14.0	10.9	93.5						
Block 03 Lot 24	19.0	8.4	92.1						
Block 03 Lot 25	4.0	6.3	94.6						
Block 03 Lot 25	9.0	8.0	101.9	26	8		47.3	- 2.7	1000
Block 03 Lot 25	14.0	12.2							
Block 03 Lot 25	19.0	18.6	89.7						
Block 04 Lot 01	4.0	6.6	89.9						
Block 04 Lot 01	9.0	8.6	83.4						
Block 04 Lot 01	14.0	15.3	81.7						
Block 04 Lot 01	19.0	19.4	72.3						
Block 04 Lot 02	4.0	6.4	94.3						
Block 04 Lot 02	9.0	10.0	93.9						
Block 04 Lot 02	14.0	15.5	90.5						
Block 04 Lot 02	19.0	18.1	89.1						
Block 04 Lot 03	4.0	5.5	86.9						
Block 04 Lot 03	9.0	10.8	94.7						
Block 04 Lot 03	14.0	14.4	85.6	31	6	0.0	63.2	0.2	1000
Block 04 Lot 03	19.0	19.8	86.0						
Block 04 Lot 04	4.0	6.2	89.6						
Block 04 Lot 04	9.0	9.2	81.6						
Block 04 Lot 04	14.0	17.8	87.9						
Block 04 Lot 04	19.0	22.4	89.4						
Block 04 Lot 05	4.0	6.5	95.1						
Block 04 Lot 05	9.0	8.7	94.7						
Block 04 Lot 05	14.0	20.3	92.1						
Block 04 Lot 05	19.0	19.5	91.7						
Block 04 Lot 06	4.0	6.2	89.5	28	14		55.6	- 6.9	1000
Block 04 Lot 06	9.0	10.2	96.1						

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Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 180135 FIGURE No. 57 PAGE 8 OF 13 DATE Mar/30/2021

Colorado Springs: (Corporate Office)
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SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 04 Lot 06	14.0	15.0	82.7						
Block 04 Lot 06	19.0	21.1	95.2						
Block 04 Lot 07	4.0	6.1	91.0						
Block 04 Lot 07	9.0	14.8	95.3	30	15		65.0	- 1.5	1000
Block 04 Lot 07	14.0	20.2	83.4						
Block 04 Lot 07	19.0	16.3	81.8						
Block 04 Lot 08	4.0	5.8	100.2						
Block 04 Lot 08	9.0	10.8	87.0						
Block 04 Lot 08	14.0	20.2	94.1						
Block 04 Lot 08	19.0	18.5	90.0						
Block 04 Lot 09	4.0	6.7	99.0						
Block 04 Lot 09	9.0	9.1	94.3						
Block 04 Lot 09	14.0	33.9	96.5						
Block 04 Lot 09	19.0	16.3	87.5						
Block 04 Lot 10	4.0	7.7	89.3						
Block 04 Lot 10	9.0	7.5	90.3						
Block 04 Lot 10	14.0	14.3	90.7						
Block 04 Lot 10	19.0	16.6	102.3						
Block 04 Lot 11	4.0	9.4	92.4						
Block 04 Lot 11	9.0	10.7	89.5						
Block 04 Lot 11	14.0	21.6	86.5						
Block 04 Lot 11	19.0	22.2	83.8						
Block 04 Lot 12	4.0	8.2	103.2						
Block 04 Lot 12	9.0	9.9	89.8						
Block 04 Lot 12	14.0	16.8	98.2					- 0.1	1000
Block 04 Lot 12	19.0	28.2	86.0						
Block 04 Lot 13	4.0	9.3	83.3						
Block 04 Lot 13	9.0	5.5	105.6						
Block 04 Lot 13	14.0	15.6	100.5						
Block 04 Lot 13	19.0	21.8	103.6						
Block 04 Lot 14	4.0	12.8	86.5						
Block 04 Lot 14	9.0	14.2	93.3	33	17		30.6	- 2.1	1000
Block 04 Lot 14	14.0	12.0	101.3						
Block 04 Lot 14	19.0	22.9	109.2						

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SUMMARY OF LABORATORY TEST RESULTS

JOB No. 180135 FIGURE No. 57 PAGE 9 OF 13 DATE Mar/30/2021

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SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 04 Lot 15	4.0	11.2	96.6						
Block 04 Lot 15	9.0	7.8	89.8						
Block 04 Lot 15	14.0	14.2	102.5						
Block 04 Lot 15	19.0	18.9							
Block 04 Lot 16	4.0	9.3	103.6	31	19	0.0	48.3	0.2	1000
Block 04 Lot 16	9.0	9.4	97.9						
Block 04 Lot 16	14.0	12.4	106.0						
Block 04 Lot 16	19.0	27.6							
Block 04 Lot 17	4.0	6.9	97.2						
Block 04 Lot 17	9.0	8.0	99.4						
Block 04 Lot 17	14.0	15.2	81.2						
Block 04 Lot 17	19.0	21.9	95.8						
Block 04 Lot 18	4.0	6.9	97.8						
Block 04 Lot 18	9.0	8.7	95.5						
Block 04 Lot 18	14.0	16.0	96.2						
Block 04 Lot 18	19.0	23.1	91.5						
Block 04 Lot 19	4.0	7.8	91.6						
Block 04 Lot 19	9.0	9.8	92.3						
Block 04 Lot 19	14.0	14.8							
Block 04 Lot 19	19.0	21.8							
Block 04 Lot 20	4.0	6.7	85.1						
Block 04 Lot 20	9.0	8.9	86.5						
Block 04 Lot 20	14.0	18.9	93.7						
Block 04 Lot 20	19.0	17.2	110.0						
Block 04 Lot 21	4.0	6.7	87.5						
Block 04 Lot 21	9.0	9.4	93.8	30	16		67.2	- 2.3	1000
Block 04 Lot 21	14.0	20.2	93.4						
Block 04 Lot 21	19.0	21.3	96.3						
Block 04 Lot 22	4.0	5.7	89.4						
Block 04 Lot 22	9.0	8.3	86.4						
Block 04 Lot 22	14.0	11.5							
Block 04 Lot 22	19.0	18.3							
Block 04 Lot 23	4.0	7.2	98.3						
Block 04 Lot 23	9.0	7.9	77.5						

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SUMMARY OF LABORATORY TEST RESULTS

JOB No. 180135 FIGURE No. 57 PAGE 10 OF 13 DATE Mar/30/2021

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SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 04 Lot 23	14.0	11.7	89.2						
Block 04 Lot 23	19.0	18.1	99.0						
Block 04 Lot 24	4.0	6.1	91.6	26	9		48.6	- 7.2	1000
Block 04 Lot 24	9.0	7.8	93.9						
Block 04 Lot 24	14.0	27.3	96.7						
Block 04 Lot 24	19.0	20.3	88.0						
Block 04 Lot 25	4.0	6.3	96.1						
Block 04 Lot 25	9.0	8.9	92.8						
Block 04 Lot 25	14.0	12.8	91.4						
Block 04 Lot 25	19.0	17.8							
Block 05 Lot 01	4.0	11.7	114.9	33	20		73.4	0.0	1000
Block 05 Lot 01	9.0	21.5	98.3						
Block 05 Lot 01	14.0	26.2	95.9						
Block 05 Lot 01	19.0	30.1	87.9						
Block 05 Lot 02	4.0	13.2	112.6						
Block 05 Lot 02	9.0	13.8	110.5						
Block 05 Lot 03	4.0	14.1	107.6						
Block 05 Lot 03	9.0	14.4	109.7						
Block 05 Lot 03	14.0	19.6	105.6						
Block 05 Lot 03	19.0	21.9	92.7						
Block 05 Lot 04	4.0	8.8							
Block 05 Lot 04	9.0	12.5	110.3	29	13		60.5	- 0.9	1000
Block 05 Lot 04	14.0	15.5	109.3						
Block 05 Lot 04	19.0	15.2	110.6						
Block 05 Lot 05	4.0	7.9	110.1					- 3.9	1000
Block 05 Lot 05	9.0	11.5	115.1						
Block 05 Lot 05	14.0	16.8	107.6						
Block 05 Lot 05	19.0	21.2	99.5						
Block 05 Lot 06	4.0	9.7	105.7	41	25		78.8	5.4	1000
Block 05 Lot 06	9.0	13.4	114.8						
Block 05 Lot 06	14.0	13.3	114.4						
Block 05 Lot 06	19.0	21.8	105.2						
Block 05 Lot 07	4.0	8.2	106.8						
Block 05 Lot 07	9.0	14.5	113.0						

Architectural Structural Forensics



Geotechnical Materials Testing

Materials Testing Civil, Planning SUMMARY OF LABORATORY TEST RESULTS JOB No. 180135 FIGURE No. 57 PAGE 11 OF 13 DATE Mar/30/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 05 Lot 07	14.0	18.7	106.2						
Block 05 Lot 07	19.0	18.8							
Block 05 Lot 08	4.0	10.8	98.6						
Block 05 Lot 08	9.0	16.7	122.5						
Block 05 Lot 08	14.0	14.4	113.6						
Block 05 Lot 08	19.0	21.0	99.8						
Block 05 Lot 09	4.0	8.5	109.4						
Block 05 Lot 09	9.0	16.1	106.9						
Block 05 Lot 09	14.0	14.8	111.3						
Block 05 Lot 09	19.0	8.5	114.5						
Block 05 Lot 10	4.0	7.1	112.0					- 6.3	
Block 05 Lot 10	9.0	8.2	113.7						
Block 05 Lot 10	14.0	16.9	108.0						
Block 05 Lot 10	19.0	23.4	102.6						
Block 05 Lot 11	4.0	8.5	109.7						
Block 05 Lot 11	9.0	9.6	108.9	25	7		45.2	- 0.8	1000
Block 05 Lot 11	14.0	14.8	111.5						
Block 05 Lot 11	19.0	21.6	105.0						
Block 05 Lot 12	4.0	8.8	106.9						
Block 05 Lot 12	9.0	9.2	108.7						
Block 05 Lot 12	14.0	14.4	113.0						
Block 05 Lot 12	19.0	19.5	101.0						
Block 05 Lot 13	4.0	8.3	100.0						
Block 05 Lot 13	9.0	8.9	115.9						
Block 05 Lot 13	14.0	9.3	116.4						
Block 05 Lot 13	19.0	19.4	109.2						
Block 05 Lot 14	4.0	5.6	111.5						
Block 05 Lot 14	9.0	12.5	112.7						
Block 05 Lot 14	14.0	14.7	107.2						
Block 05 Lot 14	19.0	20.9	103.9						
Block 05 Lot 15	4.0	6.8	113.8	33	16		54.7	0.2	1000
Block 05 Lot 15	9.0	9.6	113.0						
Block 05 Lot 15	14.0	15.7	110.4						
Block 05 Lot 15	19.0	21.2	104.7						

Architectural Structural Forensics



Geotechnical Materials Testing

ng J SUMMARY OF LABORATORY TEST RESULTS JOB No. 180135 FIGURE No. 57 PAGE 12 OF 13 DATE Mar/30/2021

Colorado Sarings: (Corporate Office)
2910 Austin Bluffs Partway
Colorado Spings, CO 80916
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Block 05 Lot 16	4.0	8.5	103.9						
Block 05 Lot 16	9.0	11.8	114.4						
Block 05 Lot 16	14.0	16.8	113.1						
Block 05 Lot 16	19.0	20.3	107.2						
Block 05 Lot 17	4.0	11.8	107.2						
Block 05 Lot 17	9.0	14.0	111.1						
Block 05 Lot 17	14.0	18.8	118.6						
Block 05 Lot 17	19.0	20.0	106.6						

Architectural Structural Forensics

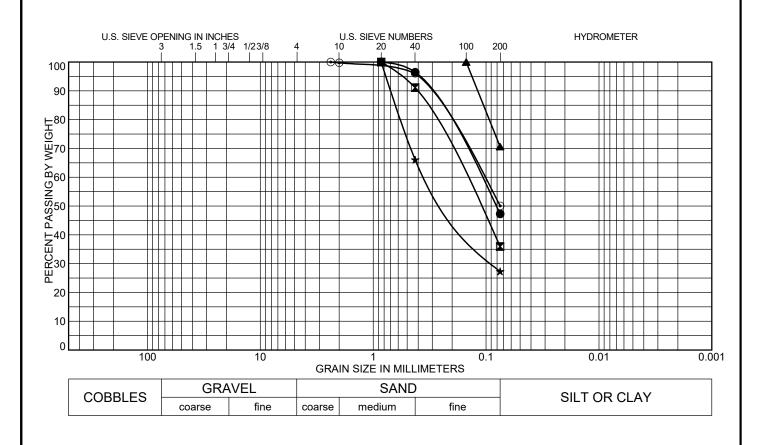


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Colorado Sarings: (Corporate Office)
2910 Austin Bluffs Partway
Colorado Springs, CO 80916
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

SUMMARY OF LABORATORY TEST RESULTS

JOB No. 180135 FIGURE No. 57 PAGE 13 OF 13 DATE Mar/30/2021



1	Γest Boring	Depth (ft)		Classification						PI
•	Block 01 Lot 02	9.0			CLAYEY SA	AND(SC)		26	17	9
×	Block 01 Lot 04	4.0			CLAYEY SA	ND(SC)		28	16	12
A	Block 01 Lot 07	9.0		LEAN CLAY with SAND(CL)					16	13
*	Block 01 Lot 12	4.0			CLAYEY SA	ND(SC)		25	16	9
•	Block 01 Lot 15	9.0		SANDY LEAN CLAY(CL)						14
-	Test Boring	Denth (ft)	% Gravel % Cand % Silt % Clay					•	•	

	est Boring	Depth (tt)	%Gravei	%Sand	%SIIT	%Clay
•	Block 01 Lot 02	9.0	0.0	52.7	47	'.3
\blacksquare	Block 01 Lot 04	4.0	0.0	64.1	35	5.9
lack	Block 01 Lot 07	9.0	0.0	29.4	70).6
*	Block 01 Lot 12	4.0	0.0	72.7	27	'.3
•	Block 01 Lot 15	9.0	0.0	50.0	50	0.0

Architectural Structural Forensics



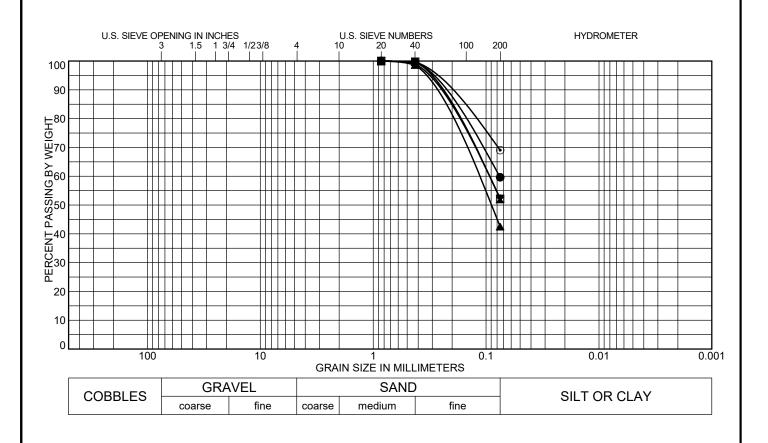
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(719) 548-0600
SOUTHERN COLORADO, DEWVER METRO, NORTHERN COLORADO

SOIL CLASSIFICATION DATA

JOB No. 180135

FIGURE No. 58



ļ٦	est Boring	Depth (ft)		Classification					PL	PI
•	Block 01 Lot 18	14.0				NP	NP	NP		
	Block 01 Lot 22	4.0		SA		26	17	9		
▲	Block 01 Lot 26	9.0		SILTY)	24	19	5		
*	Block 02 Lot 02	4.0		SA	NDY LEAN	CLAY(CL)		28	17	11
•	Block 02 Lot 05	9.0		SAN	DY SILTY C	LAY(CL-ML)		26	20	6
	Test Boring	Depth (ft)	%Gravel %Sand %Silt %Clay							
•	Block 01 Lot 18	14.0	0.0	0.0 40.4 59.6						

	rest boring	Depth (It)	%Glavei	%Sand	70 5 111	%Clay
•	Block 01 Lot 18	14.0	0.0	40.4	59	.6
X	Block 01 Lot 22	4.0	0.0	47.9	52	.1
▲	Block 01 Lot 26	9.0	0.0	57.5	42	5
*	Block 02 Lot 02	4.0	0.0	47.6	52	.4
•	Block 02 Lot 05	9.0	0.0	30.9	69	.1

Architectural Structural Forensics



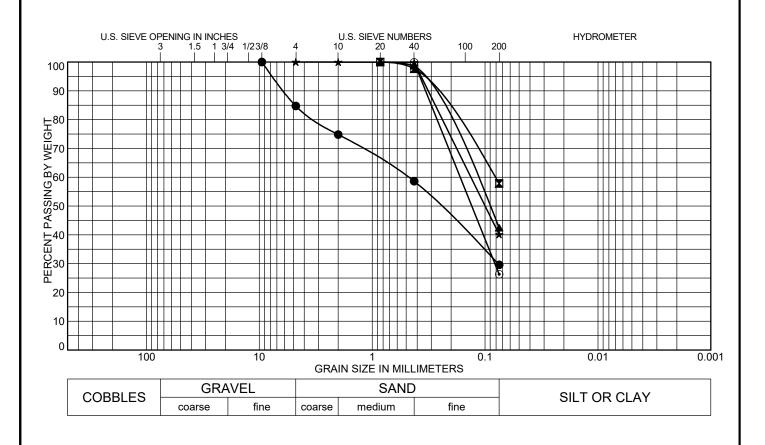
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SOUTHERN COLORADO, DEWVER METRO, NORTHERN COLORADO

SOIL CLASSIFICATION DATA

JOB No. 180135

FIGURE No. 59



٦	Test Boring	Depth (ft)		Classification						PI
•	Block 02 Lot 08	4.0		SILTY SAND with GRAVEL(SM)						NP
X	Block 02 Lot 11	9.0		SAN	26	19	7			
▲	Block 03 Lot 01	4.0			27	18	9			
*	Block 03 Lot 04	9.0			SILTY SAI	ND(SM)		NP	NP	NP
•	Block 03 Lot 06	9.0			SILTY SAI	ND(SM)		NP	NP	NP
-	Гest Boring	Depth (ft)	%Gravel	Gravel %Sand %Silt %Clay						
•	Block 02 Lot 08	4.0	15.3	15.3 55.1 29.6						

	rest buring	Deptii (it)	70Glavel	%Sand	70 SIIL	70Clay
•	Block 02 Lot 08	4.0	15.3	55.1	29	.6
X	Block 02 Lot 11	9.0	0.0	42.2	57	. .8
▲	Block 03 Lot 01	4.0	0.0	57.5	42	2.5
*	Block 03 Lot 04	9.0	0.0	59.9	40	.1
•	Block 03 Lot 06	9.0	0.0	73.7	26	5.3



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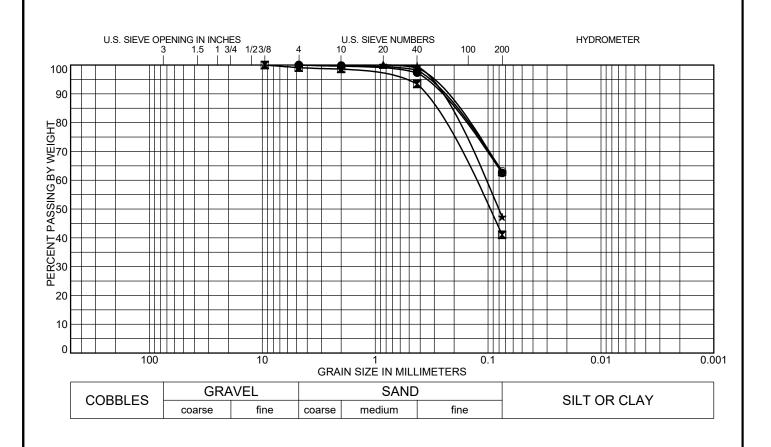
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SOUTHERN COLORADO, DEWVER METRO, NORTHERN COLORADO

SOIL CLASSIFICATION DATA

JOB No. 180135

FIGURE No. 60



	Test Boring	Depth (ft)		Classific	ation		LL	PL	PI
	Block 03 Lot 10	4.0	SA	NDY LEAN	CLAY(CL)		32	13	19
	Block 03 Lot 12	9.0	CLAYEY SAND(SC)				24	13	11
4	Block 03 Lot 17	4.0	SANDY LEAN CLAY(CL)				31	14	17
7	Block 03 Lot 25	9.0		CLAYEY SA	ND(SC)		26	18	8
(Block 04 Lot 03	14.0	SANDY SILT(ML)				31	25	6
Test Boring Depth (ft) %Gravel %Sand %Silt %			%Clav						

	est Boring	Deptn (tt)	%Gravei	%Sand	%SIIT	%Clay
•	Block 03 Lot 10	4.0	0.0	37.5	62	2.5
\blacksquare	Block 03 Lot 12	9.0	0.9	58.0	41	.1
lack	Block 03 Lot 17	4.0	0.0	37.3	62	2.7
*	Block 03 Lot 25	9.0	0.0	52.7	47	' .3
•	Block 04 Lot 03	14.0	0.0	36.8	63	3.2

Architectural Structural Forensics



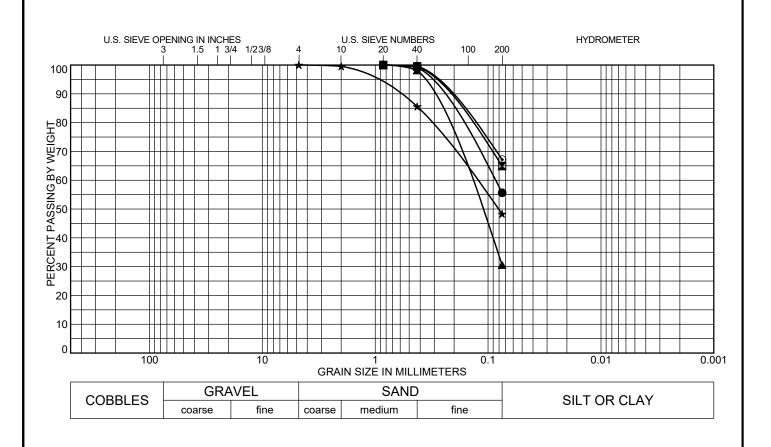
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SOUTHERN COLORADO, DEWVER METRO, NORTHERN COLORADO

SOIL CLASSIFICATION DATA

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FIGURE No. 61



	Test Boring	Depth (ft)	Classification	LL	PL	PI
•	Block 04 Lot 06	4.0	SANDY LEAN CLAY(CL)	28	14	14
X	Block 04 Lot 07	9.0	SANDY LEAN CLAY(CL)	30	15	15
A	Block 04 Lot 14	9.0	CLAYEY SAND(SC)	33	16	17
*	Block 04 Lot 16	4.0	CLAYEY SAND(SC)	31	12	19
•	Block 04 Lot 21	9.0	SANDY LEAN CLAY(CL)	30	14	16
	Took Doning	D = = 41= /ft)	0/ Crossel 0/ 0 1 0/ City 0/ Class	-		

	l est Boring	Deptn (tt)	%Gravei	%Sand	%SIIT	%Clay
•	Block 04 Lot 06	4.0	0.0	44.4	55	5.6
X	Block 04 Lot 07	9.0	0.0	35.0	65	5.0
▲	Block 04 Lot 14	9.0	0.0	69.4	30	.6
*	Block 04 Lot 16	4.0	0.0	51.7	48	.3
•	Block 04 Lot 21	9.0	0.0	32.8	67	7.2

Architectural Structural



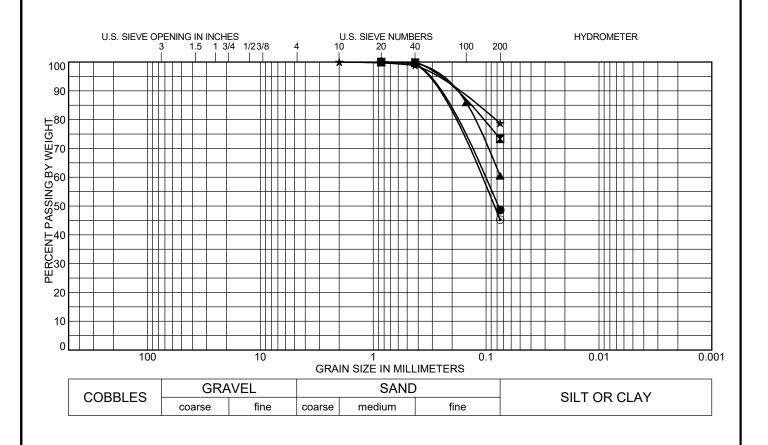
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SOIL CLASSIFICATION DATA

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FIGURE No. 62



1	est Boring	Depth (ft)			Classific	cation		LL	PL	Ы
•	Block 04 Lot 24	4.0			CLAYEY S	AND(SC)		26	17	9
X	Block 05 Lot 01	4.0		LEAN CLAY with SAND(CL)					13	20
A	Block 05 Lot 04	9.0		SANDY LEAN CLAY(CL)					16	13
*	Block 05 Lot 06	4.0		LEA	N CLAY wi	th SAND(CL)		41	16	25
•	Block 05 Lot 11	9.0		SILTY, CLAYEY SAND(SC-SM)					18	7
-	Test Boring	Depth (ft)	%Gravel	%Sand	%Silt	%Clay	•			
	Block 04 Lot 24 4.0		0.0	51 <i>/</i>	1	8.6				

	est Boring	Deptn (π)	%Gravei	%Sand	%5III	%Clay
•	Block 04 Lot 24	4.0	0.0	51.4	48	3.6
	Block 05 Lot 01	4.0	0.0	26.6	73	.4
lack	Block 05 Lot 04	9.0	0.0	39.5	60	.5
*	Block 05 Lot 06	4.0	0.0	21.2	78	3.8
•	Block 05 Lot 11	9.0	0.0	54.8	45	5.2

Architectural Structural Forensics



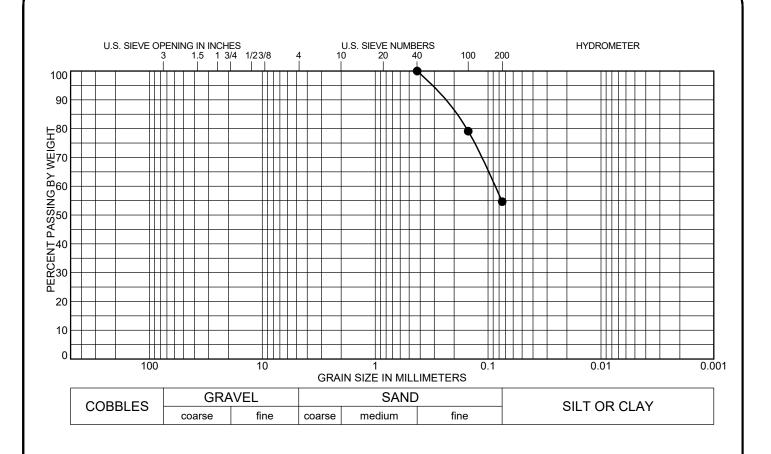
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SOUTHERN COLORADO, DEWVER METRO, NORTHERN COLORADO

SOIL CLASSIFICATION DATA

JOB No. 180135

FIGURE No. 63



٦	est Boring	Depth (ft)			Classific	ation		LL	PL	PI
•	Block 05 Lot 15	4.0		SANDY LEAN CLAY(CL)					17	16
-	Test Boring	Depth (ft)	%Gravel	0/ Cand	% Silt	%Clay				

	Test Boring	Depth (ft)	%Gravel	%Sand	%Silt	%Clay
•	Block 05 Lot 15	4.0 0.0		45.3	54.7	



Architectural Structural Forensics



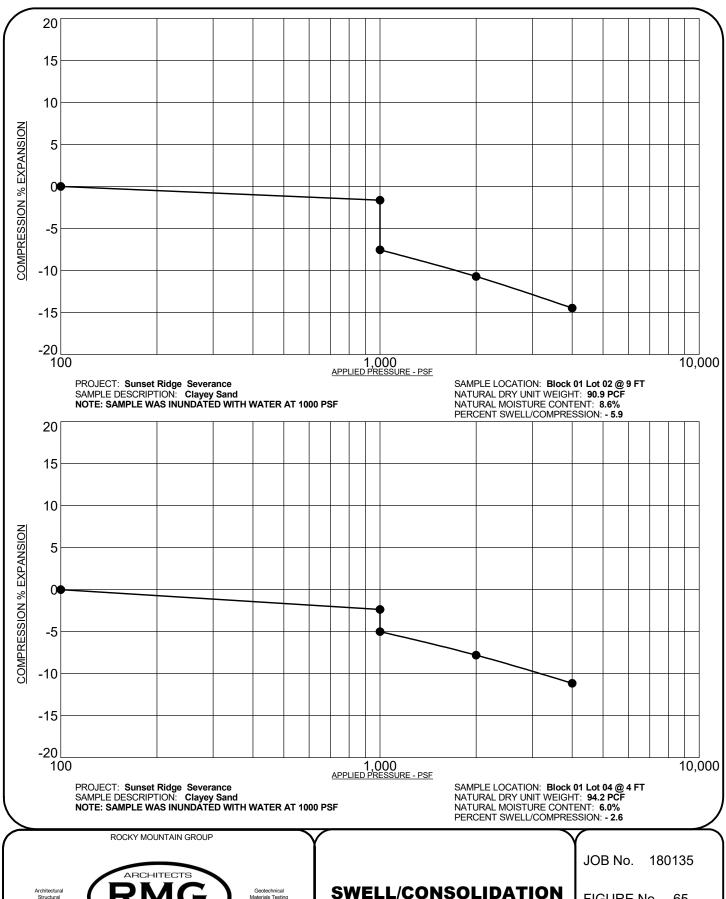
Geotechnical Materials Testing Civil, Planning

Colorado Serinas (Corporate Office)
2910 Austin Bidlis Farkway
Colorado Spings, CO 69918
(719) 548-0600
SOUTHERN COLORADO, DEWVER METRO, NORTHERN COLORADO

SOIL CLASSIFICATION DATA

JOB No. 180135

FIGURE No. 64





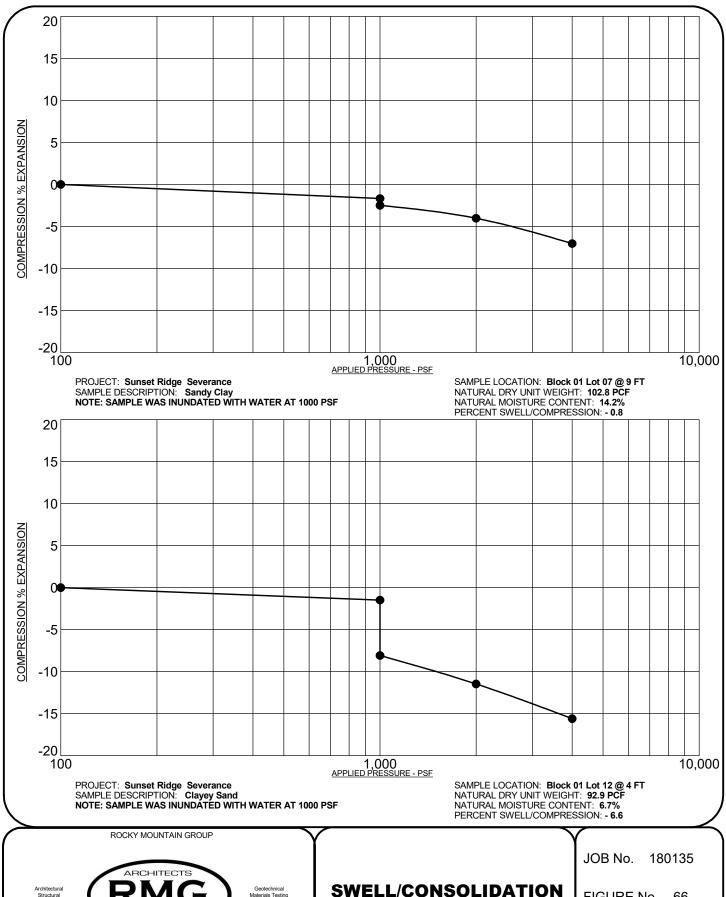
TEST RESULTS

FIGURE No. 65

Mar/30/2021 DATE

ENGINEERS

Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs, CO 80919
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

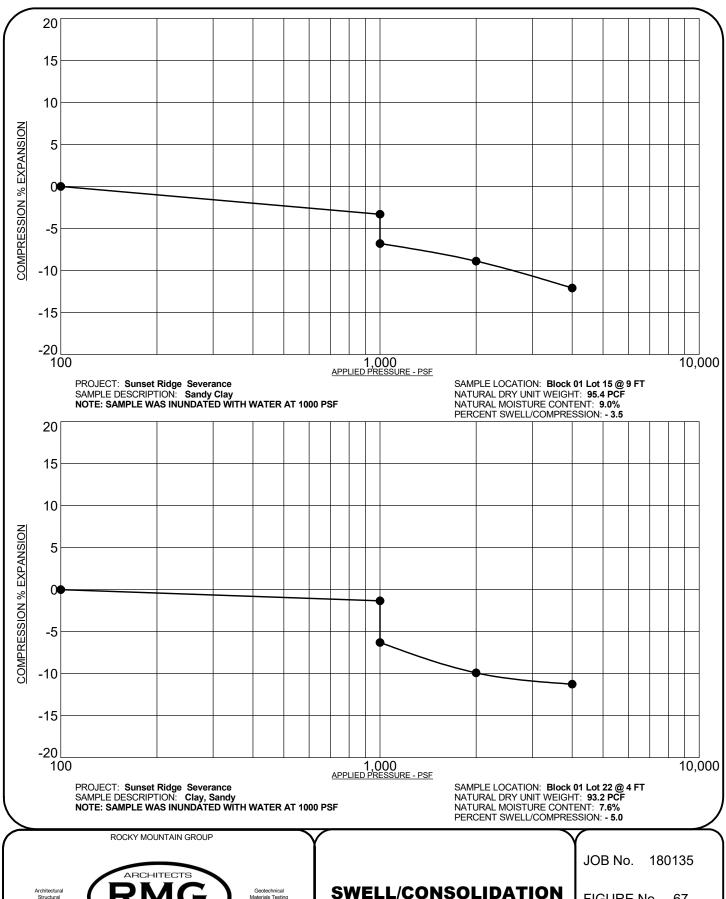


TEST RESULTS

FIGURE No. 66

Mar/30/2021 DATE

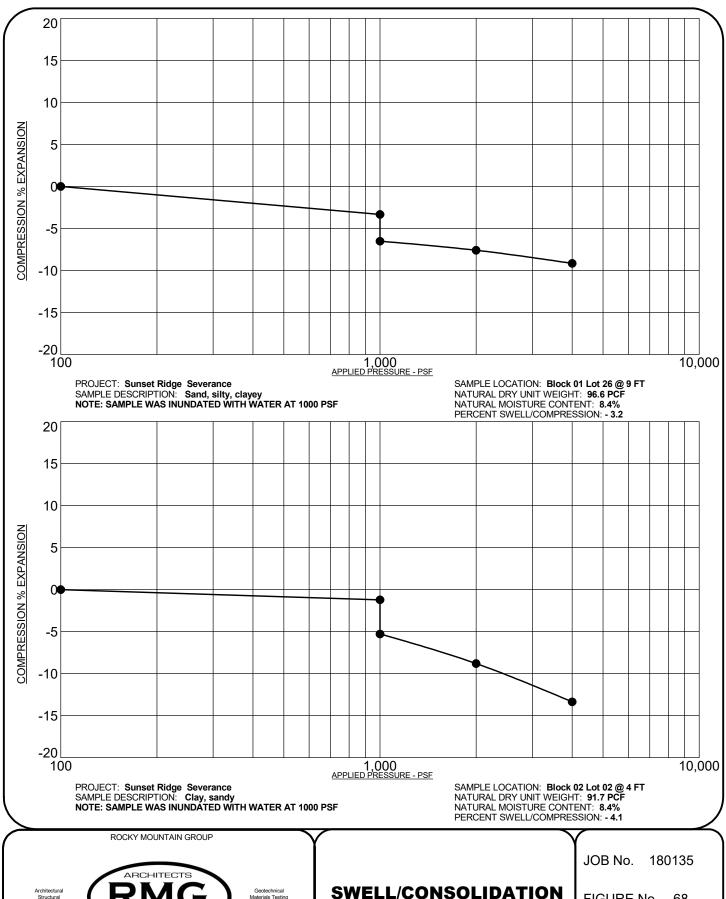
ENGINEERS Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs, CO 80919
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO



ENGINEERS Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs, CO 80919
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

TEST RESULTS

FIGURE No. 67

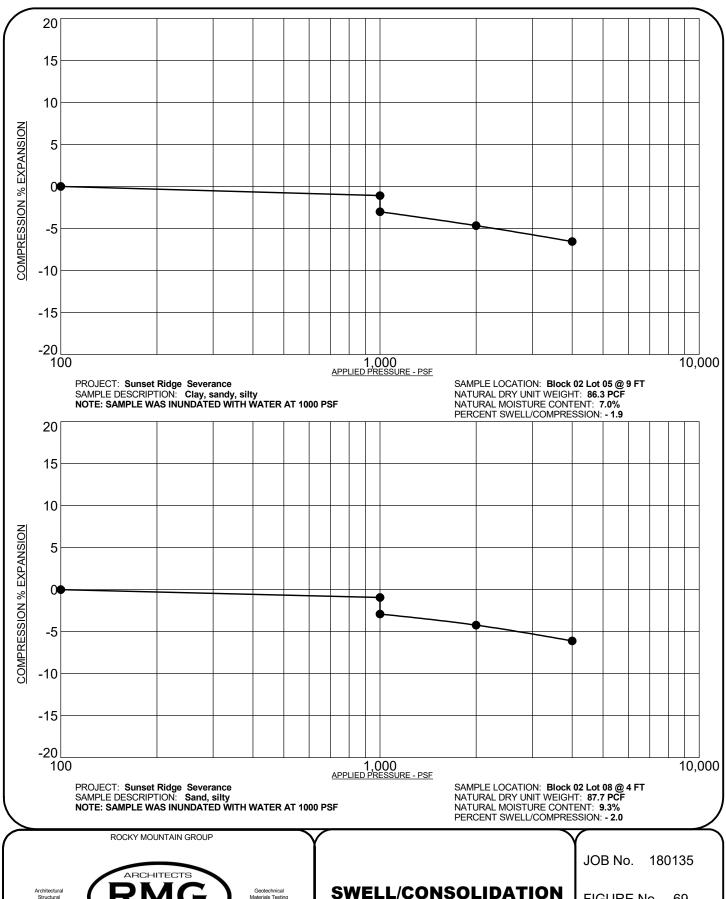


ENGINEERS

Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs, CO 80919
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

TEST RESULTS

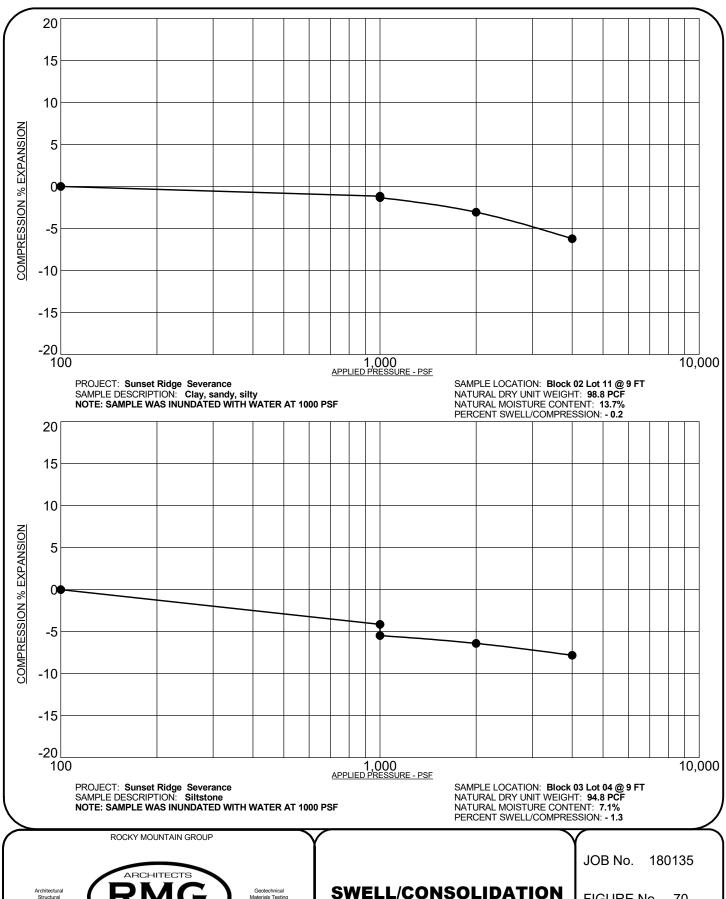
FIGURE No. 68



ENGINEERS Colorado Springs: (Corporate Office)
2910 Austin Bluffs Partway
Colorado Springs, CO 99918
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

TEST RESULTS

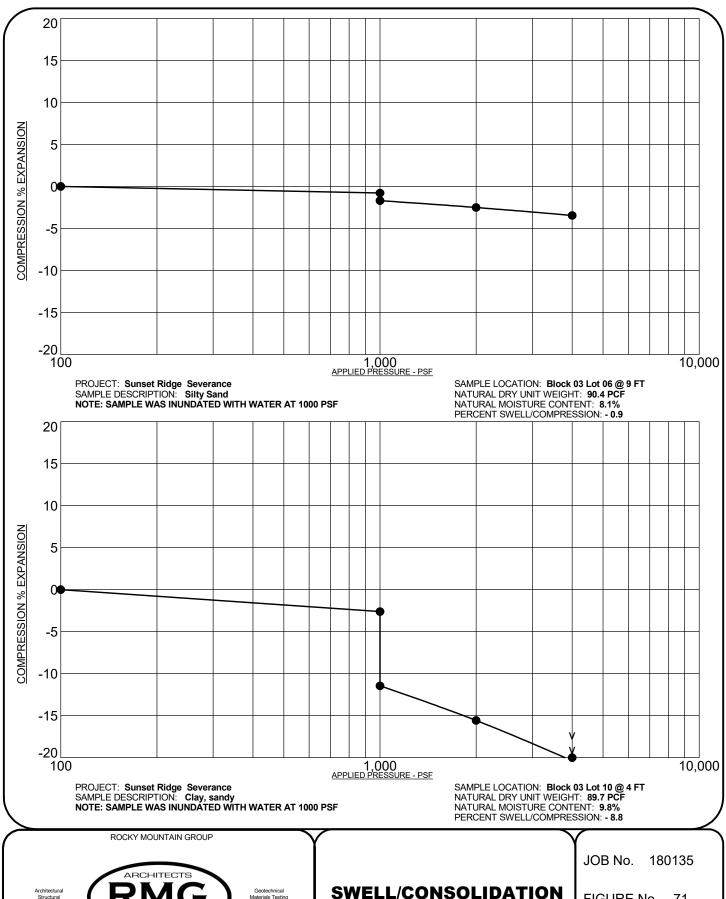
FIGURE No. 69



ENGINEERS Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs, CO 80919
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

TEST RESULTS

FIGURE No. 70

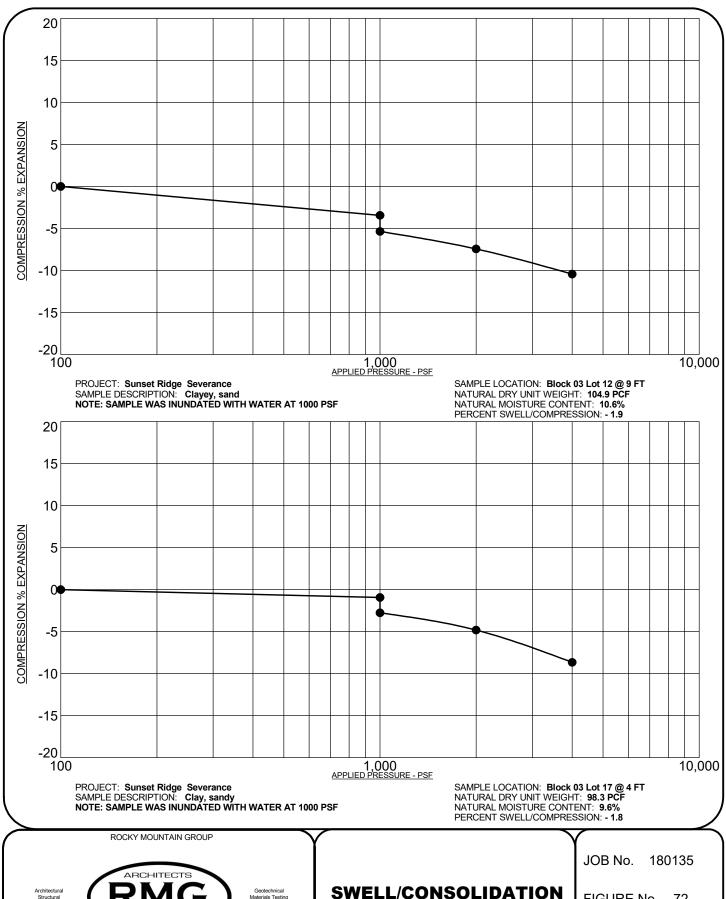




Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs, CO 80919
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

TEST RESULTS

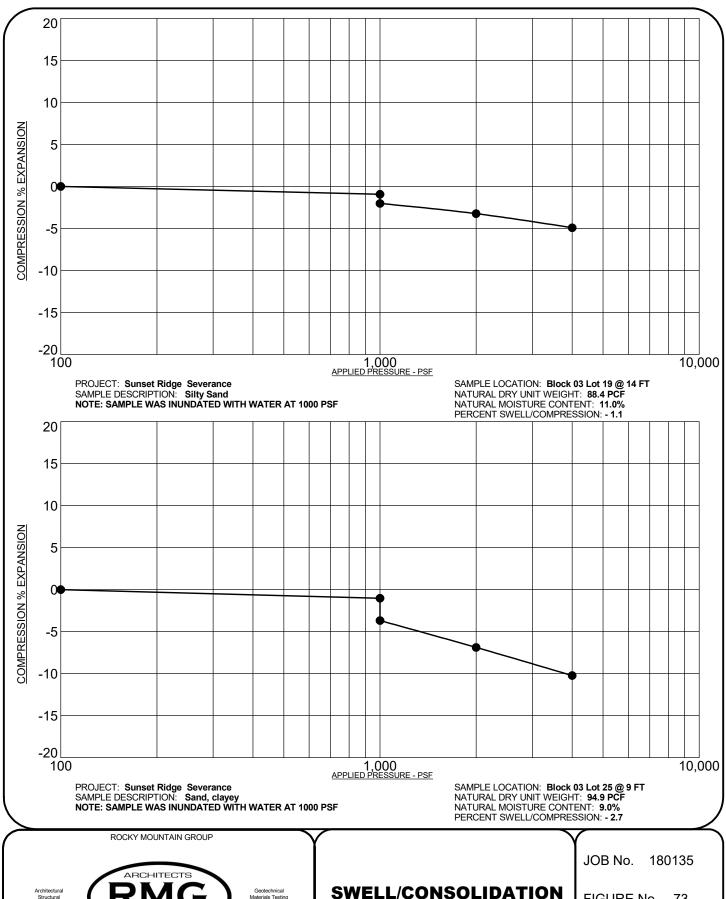
FIGURE No. 71



ENGINEERS Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs, CO 80919
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

TEST RESULTS

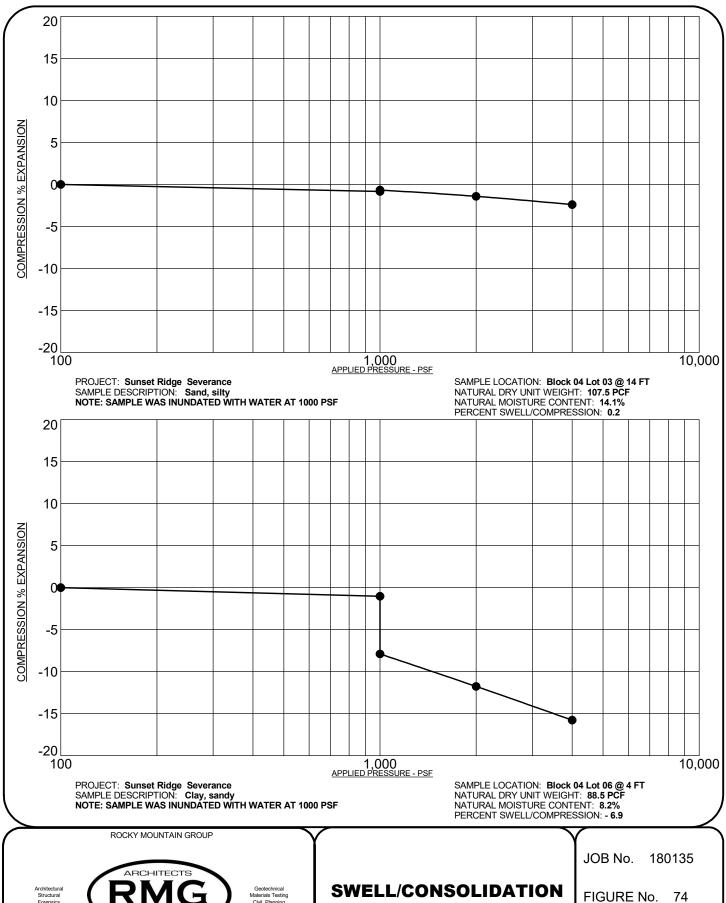
FIGURE No. 72



ENGINEERS Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs, CO 80919
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

TEST RESULTS

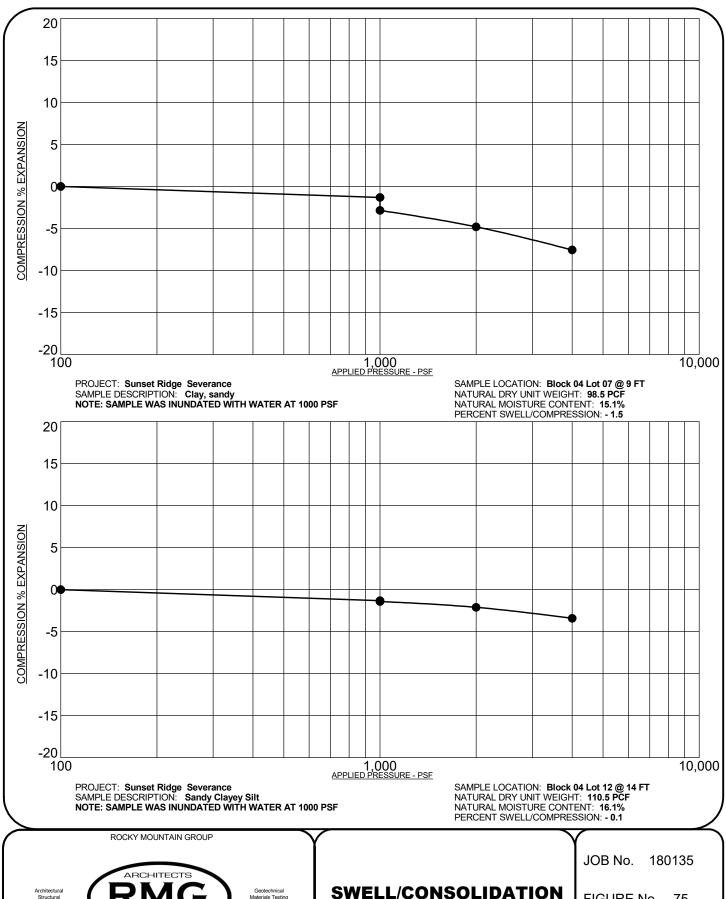
FIGURE No. 73





Colorado Springs: (Corporate Office)
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Colorado Springs, CO 80919
(719) 548-0600
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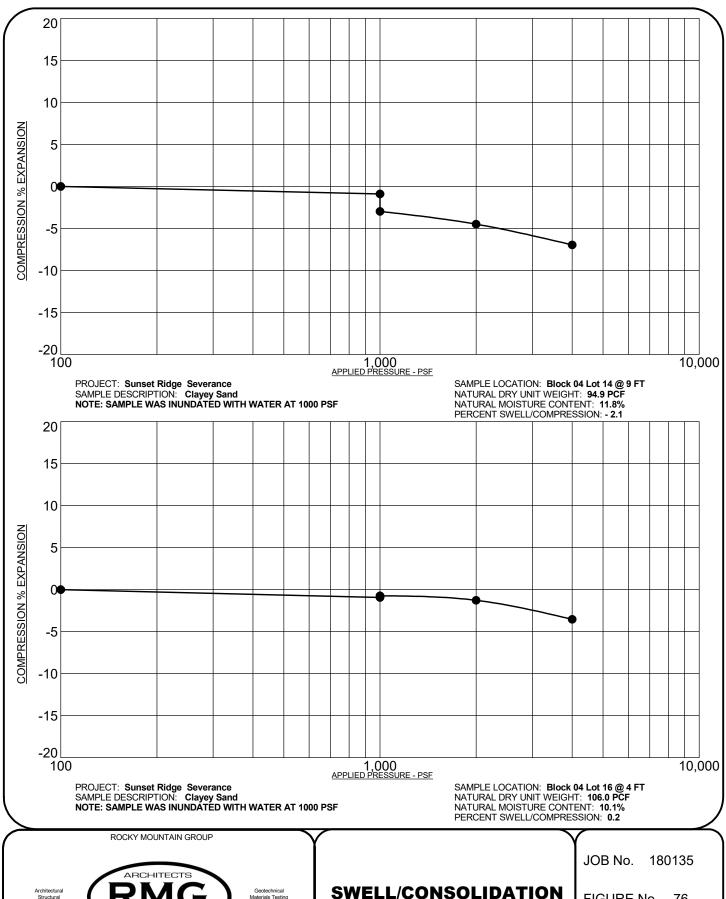
TEST RESULTS



ENGINEERS Colorado Springs: (Corporate Office)
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TEST RESULTS

FIGURE No. 75





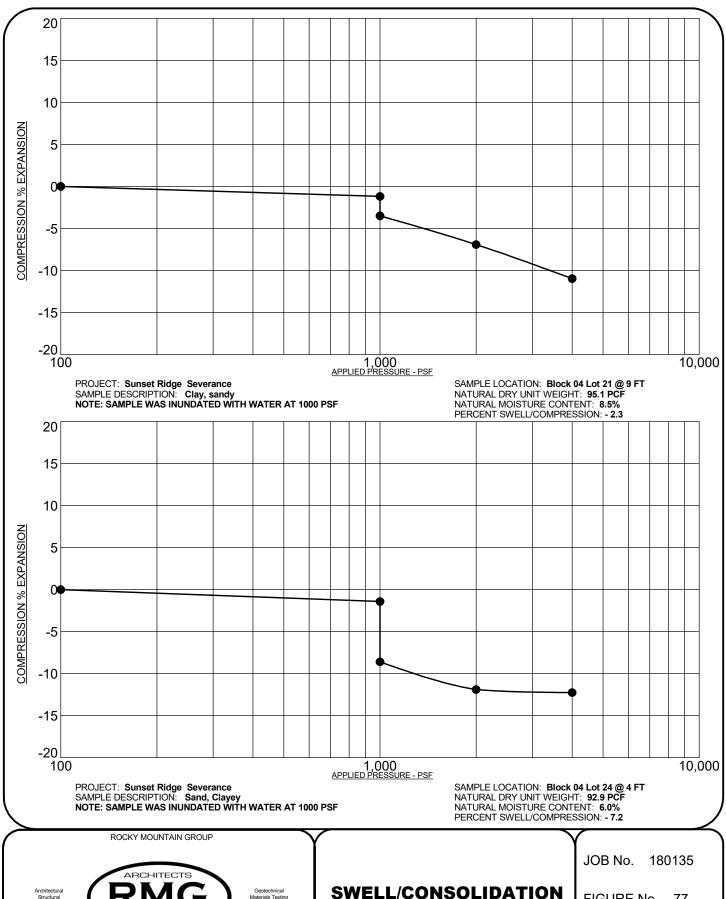
TEST RESULTS

FIGURE No. 76

Mar/30/2021 DATE

ENGINEERS

Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs, CO 80919
(719) 548-0600
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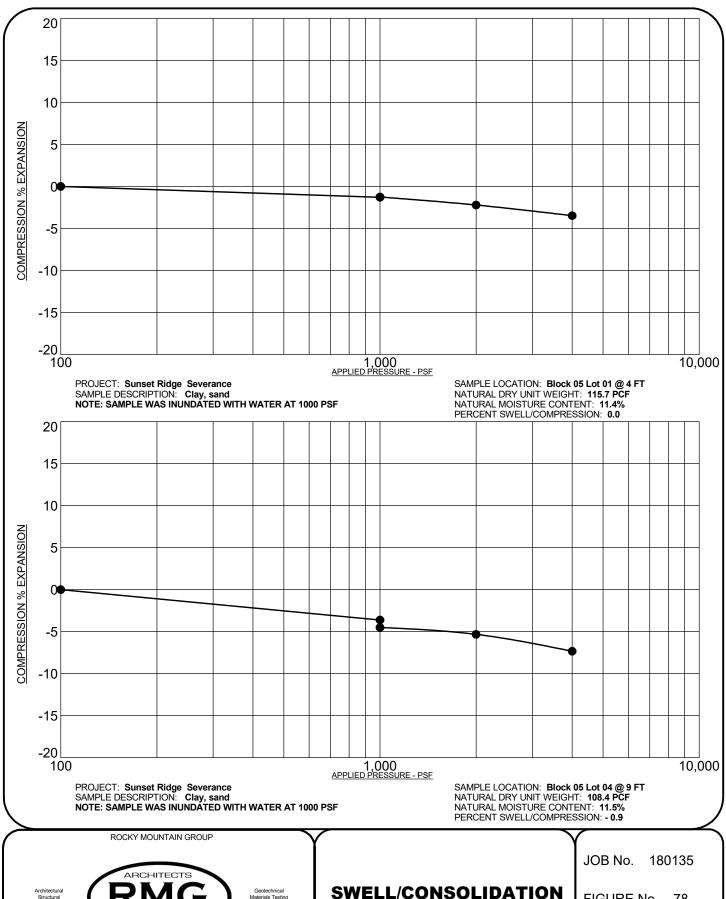


ENGINEERS

Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs, CO 80919
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

TEST RESULTS

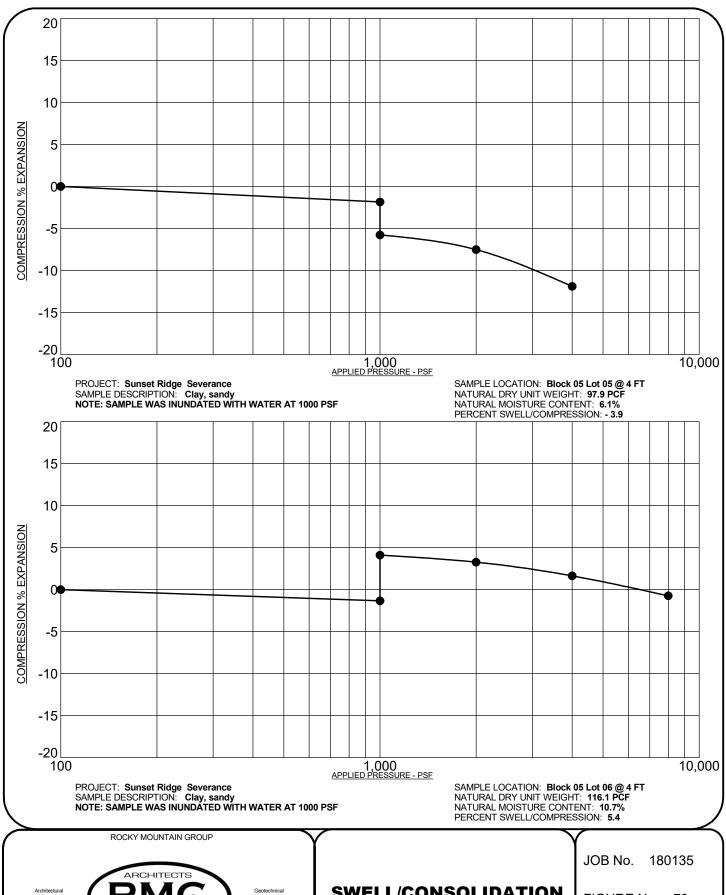
FIGURE No. 77



ENGINEERS Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs, CO 80919
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

TEST RESULTS

FIGURE No. 78



Structural Forensics

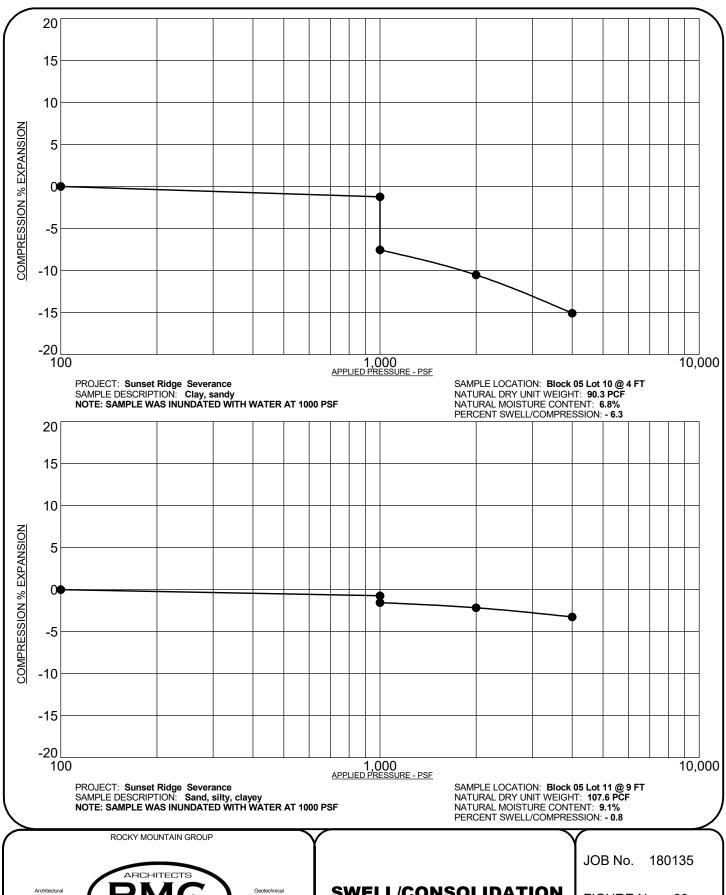


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SWELL/CONSOLIDATION TEST RESULTS

FIGURE No. 79



Architectural Structural Forensics

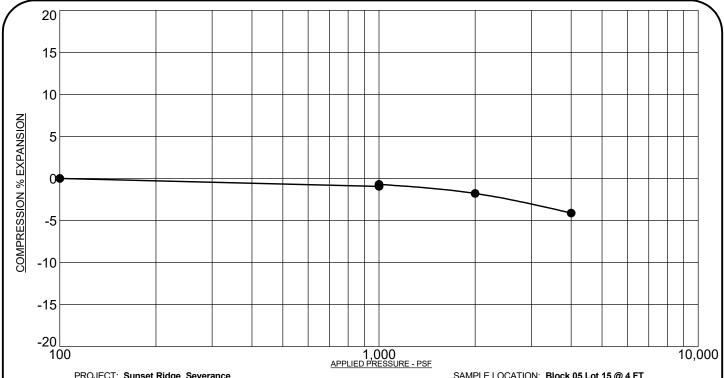


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2910 Austin Bluffs Parkway
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SWELL/CONSOLIDATION TEST RESULTS

FIGURE No. 80



PROJECT: Sunset Ridge Severance
SAMPLE DESCRIPTION: Clay, sandy
NOTE: SAMPLE WAS INUNDATED WITH WATER AT 1000 PSF

SAMPLE LOCATION: Block 05 Lot 15 @ 4 FT NATURAL DRY UNIT WEIGHT: 121.0 PCF NATURAL MOISTURE CONTENT: 7.0% PERCENT SWELL/COMPRESSION: 0.2

ROCKY MOUNTAIN GROUP

Structural Forensics



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SWELL/CONSOLIDATION TEST RESULTS

JOB No. 180135

FIGURE No. 81